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ABSTRACT

In 1989, a project was undertaken at Delaware Technical and Community College (DTCC) to review the appropriateness of the college's student placement instrument and test the use of a computerized alternative. A review of the literature and of available instruments resulted in the selection of the ACCUPLACER Computerized Placement Tests (CPT's). A pilot test was developed to determine if the CPT's were comparable to DTCC's current placement test and to verify the accuracy of departmentally recommended placement scores in reading, English, and mathematics. The test also sought to explore the uses and requirements of computerized systems and develop academic profiles of entering students. Following an initial test at one campus of DTCC, both the CPT's and the college's current placement instruments were administered to 692 students college-wide from October 1992 through June 1993. In addition, students completed questionnaires on their perceptions of the new CPT's. Results of the pilot test included the following: (1) the correlation between the CPT's and the current method was found to be highly significant, with the methods found to measure the same material between 44.66% and 53.64% of the time; (2) the recommended CPT's placement scores produced very similar placements of students as would have been obtained with the current method; (3) while the CPT's would result in higher costs than the traditional method, they were found to be very helpful in generating assessment data; and (4) students were generally pleased with the CPT's, with 75% stating a preference for that method. Background material on the placement tests and the student questionnaire are appended. (BCY)

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SELECTION OF A COLLEGE PLACEMENT INSTRUMENT AT DELAWARE TECHNICAL & COMMUNITY COLLEGE

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BY
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January 1994

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SELECTION OF A COLLEGE PLACEMENT INSTRUMENT AT DELAWARE TECHNICAL & COMMUNITY COLLEGE

INTRODUCTION

Background

During 1983 to 1986 representatives from each of the campuses examined various placement instruments to determine whether or not to replace the Comparative Guidance Placement (CGP) instrument with a more current instrument because the CGP was becoming an outdated instrument with which to assess student academic skills in reading, English and mathematics. Members of the College community wanted to review available instruments to determine if there were other more current instruments designed for placement of community college students. Dr. Edward Morante, then Director of Basic Skills for the Office of Higher Education, State of New Jersey, assisted the representatives. He issued a report describing various instruments and recommended the New Jersey College Basic Skills Placement Test but recognized that the final decision belonged to the College. As part of the process the American College Testing, Inc. and the College Board made presentations to representatives of the campuses. Ultimately, the College decided to continue using the CGP.

In 1989 the question of replacing the aging CGP was again raised. Because of the changing requirements and opportunities associated with placement instruments and the expressed concerns of a number of College representatives, members of the College conducted a review of placement instruments. As a result of examining the instruments, one instrument was selected and recommended for pilot testing.

Statement of the Problem

The pilot test was designed to determine if the ACCUPLACER could serve Delaware Tech as a comparable replacement for the currently used CGP and to verify the accuracy of the departmentally recommended placement scores in reading, English and mathematics courses and, if necessary to recommend adjustments in the scores in order to fairly and accurately place entering students.

The pilot test data were used to answer questions about whether the recommeded instrument could generate placement data which could be used to track a student's progress toward their stated educational goal and if the recommended placement instrument could be used to conduct a number of types of institutional research.

Purpose of the Pilot Test

The primary purpose of this pilot test was to determine if the ACCUPLACER Computerized Placement Tests (CPTs) could serve Delaware Tech as a comparable replacement for the CGP in order to place students in reading, English and mathematics. An additional purpose of this pilot test was to verify the accuracy of the departmentally recommended placement scores and if necessary to recommend adjustments in the ACCUPLACER placement scores.

Secondary purposes of this pilot test included the (a) development of an academic profile of entering students for each of the campuses and the College as a whole; (b) development of an understanding of the unique advantages and requirements of a computerized placement instrument; (c) identification of fiscal, facility and human resource requirements needed to administer computerized placement instruments; (d) identification of additional college requirements to be addressed in order to use computerized placement instruments; (e) identification of additional assessment opportunities which could be developed through the use of a computerized placement assessments; and (f) assessment of student satisfaction with the computerized placement instrument versus the paper-and-pencil placement instrument.

This pilot test focused on the development of ACCUPLACER CPTs subject placement scores to accurately and fairly place entering students based on the related department chairpersons' experience with these students. Related department chairpersons stated that the CGP was fairly accurate in placing students because only a few students had their course placement changed after a course specific diagnostic assessment was administered. This pilot test examined whether the ACCUPLACER CPTs could be expected to be as accurate in placing students as the CGP had been over the years.

Need for the Pilot Test

Because of the aging of the CGP and the discontinuance of research support for the CGP by the College Board, the College was ultimately led to again examine various placement instruments. During 1989 to 1991 with the support of an institutional development Title III grant, the Terry Campus faculty and student services counselors participated in a Student Outcomes Assessment Program (SOAP) Committee whose primary purpose was to design and develop a comprehensive outcomes assessment program for the Terry Campus. As part of the examination, the SOAP Committee identified the need for an updated entrance placement instrument.

During the process of examining and recommending a placement instrument, Mr. Dan Schaffer, American College Testing, Inc. and Mr. Arthur Doyle, College Board provided professional and very helpful consultation to college representatives. Each vendor supplied significant data and information about their instruments which was either distributed at their presentation or circulated among the Deans and related department chairs at each of the campuses.

In May of 1991 a collegewide meeting was held at which American College Testing, Inc. presented the advantages of the ASSET placement instrument and the College Board presented the advantages of the ACCUPLACER CPTs placement instrument. This was followed in February of 1992 with each vendor having a current user visit the College (at the vendors expense). Each of the placement instrument users met with the collegewide department chairs of reading, English, and mathematics to present their experience with using the vendor's instrument (APPENDIX A).

Ms. Kathy Quirk from Hudson Valley Community College presented her experiences with the ASSET which is a traditional paper-and-pencil placement instrument. Ms. Quirk is Hudson Valley's Director of Academic Advising and Teaching. Through an assessment center she administers the ASSET at regularly scheduled times. She stated that the instrument was accurate in placing students, was part of a larger institutional research design which could provide student information, tracking and retention data, and was an instrument that she would recommend for us to seriously consider for use at Delaware Tech.

Mr. Gary Getchell from Cape Cod Community College presented his experiences with the ACCUPLACER CPTs which is a computerized, seamless and adaptive placement instrument. Mr. Getchell is a math instructor and coordinates administration of the placement instrument at his college. Mr. Getchell administers the ACCUPLACER CPTs through a developmental studies lab which is regularly scheduled for classes as well as placement instruments. He stated that the computerized instrument was accurate in placing students, was part of a larger institutional research design which could provide student information, tracking and retention data, and was an instrument that he would recommend for us to seriously consider for use at Delaware Tech.

Ultimately, the collegewide department chairpersons of reading, English and mathematics unanimously recommended the use of the ACCUPLACER CPTs to the College's Deans of Student Services and Deans of Instruction. The recommendation included conducting a collegewide pilot test to acquire experience with the computerized placement instrument and recommended subject specific placement scores.

Research Questions

The data from the pilot test were to be used to verify the accuracy of the departmentally recommended ACCUPLACER CPT's scores for collegewide use at Delaware Tech in order to place students in entry-level reading, English, and mathematics. The analyses of the data focused on the departmentally recommended ACCUPLACER CPTs placement scores to determine if the ACCUPLACER would have placed students with the same academic profile as they would have been placed with the CGP.

An effort was made to develop a practical understanding of the advantages and disadvantages of computerized placement instrument. The secondary purposes of the pilot test assisted the College in obtaining a better understanding of how computerized placement instruments could benefit students and how the campuses and College could benefit from computerized collection of student information and placement data.

The research questions were:

1. What ACCUPLACER CPTs placement scores would produce the same placement profile as would have been produced by administration of the CGP?
2. What differences exist in the academic profile of students entering at the different campuses?
3. What are the fiscal, facility, and human resources requirements needed to administer the ACCUPLACER CPTs?
4. Can the ACCUPLACER CPTs be used by the campuses and College to conduct institutional research related to admissions, retention, student goals, and outcomes assessment?
5. In what ways could the use of the ACCUPLACER CPTs change the admissions process?

6. Would students react positively or negatively to the administration of a computerized placement instrument versus the paper-and-pencil CGP placement instrument?

Summary

The use of a computerized placement instrument represented a change from the long standing use of the paper-and-pencil CGP placement instrument. This pilot test focused on determining if the departmentally recommended ACCUPLACER CPTs placement scores for reading, English, and mathematics would academically place students with the same academic profile as they would have been placed with the CGP; however, there were a significant number of secondary concerns which included how students would react to a computerized instrument, the changes each campus and the College would need to make to use a computerized placement instrument, and how the ACCUPLACER CPTs could aid the campus and College efforts to manage and report institutional research data.

REVIEW OF RELATED LITERATURE

Introduction

The following review of literature is intended to be focused on and relevant to the specific questions posed by this study. Therefore, this review of related literature is not comprehensive in nature but intended to be informative in nature.

Literature was searched by members of the Terry Campus Student Outcomes Assessment Program Committee during 1989 to 1992, members of the Office of the President, members of the Delaware Tech faculty, and the primary researchers, Dr. H. Earl Roberts and Dr. John Bolig. A number of articles and publications were provided by individuals that were used to develop a base of information on which to consider the use of a computerized placement instrument.

The review of related literature included a 16 minute video titled, "Computerized Adaptive Testing on Campus" (College Board, 1989), a report from the New Jersey Basic Skills Council, Department of Higher Education titled, "New Jersey College Basic Skills Placement Testing" (1989), a series of data and information reports contained in the Computerized Placement Tests: Background Readings (College Board, 1991), Project Synergy: Software Support for Underprepared Students (Miami-Dade Community College, 1991), Project Cooperation: Designing and Implementing Models of Outcomes Assessment for Two-Year

Institutions (The American College Testing Program, 1990), "Accuplacer Network News" (October, 1991), "Assessment's New Wave: Computerized Placemenmt Tests", User's Guide to the MAPS Placement Research Service (Multiple Assessment Programs and Services), and a number of faculty provided journal articles.

The review of related literature which follows is related to the ACCUPLACER CPTs placement instrument.

Computerized Adaptive Testing

Computerized assessment is a relatively new application of computer testing technology. The use of computerized seamless and adaptive placement instrument is an application that is at the forefront of computer testing technology. The College Board has been a leader in developing the adaptive assessment technique over the past decade. As reported in the September 15, 1993 issue of The Chronicle of Higher Education, "New Techniques Said to Signal Revolution in Educational Testing" the College Board is currently applying this technology to the Graduate Record Examination.

Because the ACCUPLACER CPTs is a computer adaptive test (CAT) which responds to a student's answers based on item response theory (IRT), the instrument is complex in nature . In Computerized Placement Tests: Background Readings (College Board, 1991) Howard

Wainer in his article "On Item Response Theory and Computerized Adaptive Tests: The Coming Technological Revolution in Testing" states:

> We are now on the verge of a technological revolution in testing. Paradoxically, the new testing is, in a sense, a return to old-fashioned individualized examinations. The merits of a one-on-one examination individually tailored to each student's knowledge and ability will be once again achieved. Now, however, the arbitrariness and lack of objectivity of such exams will have been removed. Further, we will expand greatly the range of questions that the "examiner" can ask through the inclusion of ancillary audio and video materials. (p. 17)

ACCUPLACER COMPUTERIZED PLACEMENT TESTS

The Computerized Placement Tests: Coordinator's Guide Program Overview, Version 3.0 describes each of the components of ACCUPLACER CPTs. The following is a summary of the descriptions contained on pages three to seven of the "Coordinator's Guide" just cited.

ACCUPLACER CPTs includes several components which are a (a) Computerized Placement Tests (CPTs), (b) Computerized Placement Management Software (CPMS) system, (c) Placement Research Service (PRS), and (d) Placement Articulation Software Service (PASS). The first three listed components when used together can be used to manage entering student data. The last component (PASS) is used with high school students to assess their performance on the CPTs for the purposes of counseling and advising students on their readiness for college.

The ACCUPLACER CPTs is used at several hundred colleges. The instruments have been field tested since 1984 at a number of community colleges which have reported their results. The placement instruments have been proven to be both reliable and valid. The College Board has provided studies conducted by other community colleges as direct evidence of the instrument's reliability and validity.

Computerized Placement Tests

The Computerized Placement Tests (CPTs) is a placement instrument which is based on computer adaptive testing (CAT) and item response theory (IRT). This methodology produces a customized test based on a student's abilities, demonstrated knowledge, and background. As a student answers questions the placement instrument adapts by increasing or decreasing the difficulty of subsequent questions. Because there is no time limit, the ACCUPLACER CPTs are not a "power" test of knowledge based on the number of questions which can be answered correctly during a fixed time period. Less time is required to administer the ACCUPLACER CPTs than is required to monitor and proctor the administration of the pencil-and-paper CGP (about two hours). To complete a CPTs reading, writing and mathematics assessment series of three to four tests takes about one and one-half hours.

At the beginning of the CPTs, a series of background questions are asked of each student. The College Board has embedded a standard set of questions in the supplied software but these can be customized for Delaware Tech. The answers to these background questions are used to determine the beginning level of content area questions.

CPTs content areas are Reading Comprehension, Sentence Skills, Arithmetic Skills, Elementary Algebra Skills, and College-Level Mathematics. These can be taken separately or automatically sequenced so that one content area will follow another which is called Seamless Serial Testing by the College Board.

The College Board's "Coordinator's Guide" provides data on the following:

- The relationship of CPTs Total Right Scores to percentile ranks, their standard errors of measurements, and the correspondence between CPTs scores and the original Descriptive Tests of Language and Mathematics Scores (DTLS/DTMS) and the New Jersey College Basic Skills Placement Test (NJCBSPT). (p. 4)

The College Board also has developed supplementary skills assessment test modules in mathematics for students scoring very low on the Arithmetic Skills or Elementary Algebra Skills content areas. The two non-adaptive modules provide additional information about six skill areas in which students typically lack proficiency. Based on the College's option, these modules could automatically be given to a student after they have completed the CPTs.

Further, the College Board has developed the Levels of English Proficiency (LOEP) test to assess native English speakers with limited proficiency and to assess students who learned English as a Second Language (ESL). The assessment module covers vocabulary, language usage, and reading comprehension. This module is an option that the College could select to be administered to students after they have completed the CPTs.

Finally, the CPTs was approved by the United States Department of Education for Ability to Benefit purposes (May, 1991). This use of the CPTs was not included in the scope of the pilot test of the CPTs at Delaware Tech.

Computerized Placement Management Software

The Computerized Placement Management Software (CPMS) can be used to place students in courses and to track student progress through the use of "decision rules." The "decision rules" are based on the

CPTs scores, student answers to the background questions, and keyboard entered data such as high school grades, other test scores, advisor text and the student selected technology program in which they seek to be matriculated.

The CPMS is a database which can generate a list of courses for which a student is eligible. Further, based on the campus or college exercise of options a student schedule could be produced at the time of placement instrument from a campus master schedule for the semester. A number of additional reports can be generated with the CPMS software which include a listing of student CPTs scores (by name or social security number), individual student reports which list student scores, answers to background questions, and advisor text, and a summary list of test scores for all students in all content area. A sample of CPMS generated reports is included in APPENDIX B as provided in the "Coordinator's Guide."

ACCUPLACER CPTs generated data could be transferred to the Delaware Tech mainframe using the CPMS and a computer link. Representatives of the College Board have indicated that they would be willing to assist the College in developing the computer link. This direct transfer of placement instrument data at the immediate completion of the placement instrument is a significant feature which would benefit both students and the College.

Students would benefit because their placement scores and background information would be immediately available for use by a counselor and or advisor along with a list of courses for which the student is eligible and possibly a suggested schedule. Ultimately, students could receive quicker and more informed counseling and advising.

The College would benefit because staff would not spend time hand scoring each student's placement instrument, entering individual placement scores into the mainframe, or entering each student's background data. Ultimately, this could mean more accurate and immediately available data for each entering student.

Further, the immediate entering of data into the Delaware Tech mainframe would facilitate conducting of institutional research such as placement, retention and alumni studies. In addition, the College could choose to use the College Board's Placement Research Service to analyze data and receive advice for modifications to the "decision rules."

Placement Research Service

The Placement Research Service (PRS) can be used to analyze the ACCUPLACER CPTs generated data to predict student performance in reading, English, mathematics and selected technology courses. The purpose is to more effectively place and retain students.

Analysis of ACCUPLACER CPTs generated data by PRS includes correlation of placement scores with the entry-level course grades earned by students to assist (a) with validation of placement scores for entry-level courses, (b) in reviewing and revising placement policies and procedures, (c) with identification of placement alternatives about which to advise students, (d) in identifying curricula strengths and weaknesses, (e) with monitoring student progress and success, and (f) with conducting retention studies to identify students who would benefit from intervention in order to be successful at Delaware Tech. These analyses can be performed on a campus or college basis.

Reports can be generated by subgroups such as age groups, ethnic groups, or gender by campus or college. Reports include two-way tables, prediction equations, and expectancy tables.

Placement Articulation Software Service

The Placement Articulation Software Service (PASS) is a new service developed and offered by the College Board. High school students take the CPTs and are informed about their placement in college-level courses. The intent is to assist high school students to select courses in their eleventh and twelfth grades which would strengthen their academic skills and reduce their need for remediation at the college level.

This is an interesting ACCUPLACER CPTs option which might be worth exploring if the College wanted to work with area high schools to assist in providing college-level assessment information and data. High school students would complete the CPTs in the tenth grade, receive entry-level placement scores, and placement data for three colleges (one of which could always be Delaware Tech if the program were administered through Delaware Tech).

Summary

The examination, selection and recommendation of a placement instrument to pilot test in order to replace the CGP was based on vendor presentations, presentations by representatives of colleges using the respective instruments, examination of the instruments by the respective collegewide department chairpersons of reading, English, and mathematics, and review of related literature. Related department chairpersons unanimously recommended that the ACCUPLACER CPTs be pilot tested to determine whether the recommended placement scores needed to be adjusted.

The review of literature supported the validity and reliability of the ACCUPLACER CPTs. In addition, several colleges reported in the literature what their success was in using the placement instrument with community college populations.

The ACCUPLACER CPTs is a computerized placement instrument which consists of several components which include (a) the CPTs which collects background information from each student and can be used to assess reading, English, and mathematics skills; (b) the CPMS which can manage the CPTs scores to generate reports such as placement of students in specific courses and tracking of students progress; and (c) the PRS which can be used to analyze the data to improve admissions and retention of students. Also, additional components of the ACCUPLACER CPTs are (a) the PASS which can be used with high school students to assist them with selecting courses in high school that would more academically prepare them for college; (b) the two supplementary skills assessment test modules for mathematics used with those who have low proficiency in arithmetic or elementary algebra; and (c) the LOEP used to assess vocabulary, language usage, and comprehension of those with limited proficiency with English.

The unique and complex nature of computer adaptive testing and the options available with the ACCUPLACER CPTs suggest that the pilot test recommended by the related department chairpersons might be the beginning of a more complete and systematic assessment program at Delaware Tech. The pilot test was designed to answer very specific questions for the purpose of implementing ACCUPLACER CPTs; however, depending on the options selected by the College community the implementation may extend over several years.

METHODOLOGY AND PROCEDURES

Introduction

Background literature was researched, consultation was received from several individuals from other community colleges who were placement instrument users, vendors provided informational presentations, a mini-pilot test was conducted, workshops were conducted for Delaware Tech Deans of Student Services, Deans of Instruction and their support staff, and a small "users" group of site coordinators was formed.

On August 3, 1992 a collegewide workshop was conducted by the College Board to initiate the implementation of the collegewide pilot test (APPENDIX C). As a result of this meeting the primary purpose of the pilot test was developed. A written set of "ACCUPLACER PILOT TEST GUIDELINES" were provided in a memo dated October 21, 1992 (APPENDIX D) to the Deans of Student Services and Deans of Instruction.

The guidelines issued in the October 21, 1992 memo stated the purpose of the pilot test as follows:

> "The **primary question** that we want to answer is whether the ACCUPLACER can serve Delaware Tech as a comparable replacement for the currently used CGP. A result of the pilot test will be to verify the relevance of the departmentally recommended cut-scores and, if necessary to recommend

adjustments in cut-scores in order to accomplish accurate placement."

The procedures followed to conduct this pilot test are described in this section of the pilot test study. Also, demographic data is included for those students who participated in the pilot test to demonstrate that the sample was representative of the entire entering student population of Delaware Technical & Community College.

Population

The population examined in this pilot test study consisted of the College's students who had previously completed the CGP. Institutional data was provided by the College's Director of Planning and Research for comparison of the College's profile of entering student CGP scores with the sample data.

Sample

The sample examined in this pilot test study consisted of those individuals who had completed the CGP and the ACCUPLACER CPTs placement instruments during the period of October 1992 until June 1993 at each of the Delaware Tech campuses. Only the CGP scores were used to place students. The time period for conducting the pilot test at each of the four campuses did not exactly coincide due to the availability of equipment, facility and personnel. Due to the sample size at each campus, the sample size of students for each campus and the College as a whole are representative of the population.

Table 1

Comparison of Demographic Characteristics for the College Population and Pilot Test Sample

	Population (93-1)		Sample (93-2 and 93-3)	
	Number	Percent	Number	Percent
Gender:				
Male	2,498	42.1	304	43.9
Female	3,438	57.9	388	56.1
Total	5,936	100.0	692	100.0
Race:				
Black	886	14.9	126	18.2
White	4,722	79.6	546	78.9
Hispanic	144	2.4	12	1.7
Other	184	3.1	8	1.2
Total	5,936	100.0	692	100.0

Table 1 compares the College population for the 1993 fall academic term (93-1) with the sample population participating in the pilot test in the 1993 winter and spring academic terms (93-2 and 93-3).

The characteristics of the College's population have been very stable over time and the comparison produced no particular surprises. In fact, the data demonstrate that the collegewide sample was representative of the College population.

This was a pilot test to determine whether the ACCUPLACER CPTs could serve Delaware Tech as a comparable replacement for the CGP in order to place students in reading, English, and mathematics. The results of this pilot test study were used to verify the accuracy of the departmentally recommended placement scores, and if necessary to recommend adjustments in the placement scores.

Placement scores were recommended to the Joint Deans of Student Services and Deans of Instruction for use in the pilot test. In a memo dated April 10, 1992 to Dean Harry J. West, Chairman of the Deans of Instruction, the English and reading departments recommended the following percentile scores (APPENDIX E).

- 50th and above percentile to enroll in college-level courses
- 15th to 49th percentile to enroll in pre-tech courses
- 1st to 14th percentile to enroll in basic level courses

Based on the on the Computerized Placement Tests: Technical Data Supplement manual applicable to the version of the CPTs software used during the pilot test these percentiles represent the following Total Right scores. The total right scores (CPTs version 3.5) were used to analyze the data.

Reading total right scores were:

- 78 to 120 total right to enroll in college-level courses
- 51 to 77 total right to enroll in pre-tech courses
- 20 to 50 total right to enroll in basic level courses

Writing total right scores were:

- 87 to 120 total right to enroll in college-level courses
- 54 to 86 total right to enroll in pre-tech courses
- 20 to 53 total right to enroll in basic level courses

In a memo dated April 13, 1992 to Dean Harry J. West, Chairman of the Joint Deans of Instruction, the collegewide mathematics department chairpersons recommended the following percentile scores (APPENDIX E).

Arithmetic:

- 80th percentile and above to enroll in first level courses (RM099, RM115, RM130, RM131 and HS247)
- 21st to 79th percentile to enroll in the pre-tech course (RM051)
- 1st to 20th percentile to enroll in the basic course (RM005)

The total right scores (CPTs version 3.5) were used to analyze the data.

Arithmetic total right scores were:

- 104 to 120 total right to enroll in all first level courses and elementary algebra
- 103 to 41 total right to enroll in pretech courses
- 20 to 40 total right to enroll in basic courses

Between August 5, 1992 and September 4, 1992 a mini-pilot test was conducted at the Terry Campus (APPENDIX F). As stated in the mini-pilot test design, "The purpose of the pilot test is to identify and develop pilot test procedures for implementation of the collegewide CPT pilot test." The results of the mini-pilot test assisted in the development of the **"ACCUPLACER PILOT TEST GUIDELINES"** issued with the October 21, 1992 memo to the Deans (APPENDIX D).

Along with completing the CGP and ACCUPLACER CPTs, each student completed the **"STUDENT SURVEY OF DTCC PLACEMENT TESTING"** found in APPENDIX G. This was a student satisfaction questionnaire with the purpose of surveying student reaction to the ACCUPLACER CPTs.

In summary, members of the College community assisted in identifying the ACCUPLACER CPTs as the placement instrument that the College wanted to pilot test, a design was pilot tested, and the collegewide pilot test was designed and implemented in October of 1992.

Procedures

The following overall procedures describe the development of this pilot test study.

1. The collegewide department chairpersons of reading, English, and mathematics reviewed placement instruments and recommended the pilot testing of the ACCUPLACER CPTs along with placement scores.

2. The related department chairpersons recommendations were accepted by the College Joint Deans of Student Services and Deans of Instruction.

3. A mini-pilot test was designed and conducted at the Terry Campus to develop the College pilot test methods and procedures.

4. A workshop was conducted by the College Board prior to implementation of the pilot test to train representatives from each of the campuses and to assist with finalizing the pilot test design.

5. The CPT and ACCUPLACER CPTs were administered at each of the four campus sites to entering students. The instruments were administered in alternating order to small groups to limit the "practice effect" (APPENDIX H). The objective was to include two hundred students from each of the four campus sites to provide a sample size of eight hundred students.

6. Students completed a satisfaction questionnaire to assess their reaction to computerized testing versus paper-and-pencil testing.

7. Using the Delaware Tech mainframe Burroughs computer and the Delaware Tech database, preliminary data analysis was conducted to examine the sample's demography.

8. Using the Delaware Tech mainframe Burroughs computer, the raw data were analyzed.

9. Results of the analyses were prepared in writing and are included in this pilot test study.

10. Acceptance or rejection of the primary question was examined and reported in this pilot test study.

11. Summary, conclusions and recommendations based in the primary and secondary purposes of the pilot test were provided and are included in this pilot test study.

Analysis of Data

The next section of this pilot test study will demonstrate that appropriate statistical procedures were used to analyze the raw data for the placement instruments and the student satisfaction questionnaire.

All data were compiled and entered into the Delaware Tech mainframe Burroughs computer and statistically analyzed. Appropriate statistical subprograms for this pilot test study were used for analysis of the data.

Summary

The results of this pilot test study were used to determine whether the ACCUPLACER CPTs could serve Delaware Tech as a comparable replacement for the CGP. Additionally, the results were used to verify the accuracy of the departmentally recommended placement scores and, if necessary to recommend adjustments in placement scores in order to accomplish accurate placement of students in reading, English and mathematics. Data were collected from a representative sample of entering students at each of the four campus locations.

The demography of the sample taken during academic year 1992 was comparable to the entering student profile provided by the College's database of entering students for academic year 1991.

The placement instruments were commercially validated and reliable instruments which were developed by the College Board. The student satisfaction survey was similar to the sample questionnaire contained in the College Board publication, Computerized Placement Tests:Background Readings (pp. 119 -121).

The placement instruments were administered between October of 1992 and June of 1993 using an alternating order of administrations to limit the "practice effect."

The Delaware Tech mainframe Burroughs computer was used to analyze the raw data on a campus by campus basis and for the

College as a whole. The results of the analysis of data is reported within this pilot test study.

PRESENTATION AND DISCUSSION OF FINDINGS

Introduction

Entering students at each of the four Delaware Tech campus sites were administered the CGP and ACCUPLACER CPTs as part of the placement process during October of 1992 to June of 1993. A student satisfaction questionnaire was completed by each student to evaluate their reaction to the computerized placement instrument.

A collegewide sample of 692 entering students for the academic year 1992 were assessed collegewide with campus sample sizes ranging from 119 to 237. As was shown in the previous section, the sample was representative of the 1991 academic year entering students.

The selection of the ACCUPLACER CPTs was based on information from vendors and users of the respective placement instruments, review of related placement instrument literature and the first-hand examination of instruments by collegewide department chairpersons of reading, English and mathematics.

Pilot test raw data were collected from each campus site and submitted to the Director of Research and Planning for analyzis with appropriate statistical packages and subprograms using the Delaware Tech mainframe Burroughs computer and . This section reports and discusses the findings for the primary question of whether the ACCUPLACER CPTs could serve Delaware Tech as a comparable replacement for the CGP. A result of the pilot test was verification of the departmentally recommended placement scores.

Further, the results for a number of secondary questions are presented and discussed. The data for these questions assisted in developing a practical understanding of the advantages and disadvantages of computerized placement instruments.

Presentation of the Data

The primary and secondary questions were examined in some detail to document the placement score recommendations and to develop a practical understanding of the advantages and disadvantages of computerized placement instruments.

Primary Question

The primary question stated:

> "The **primary question** that we want to answer is whether the ACCUPLACER can serve Delaware Tech as a comparable replacement for the currently used CGP. A result of the pilot test will be to verify the relevance of the departmentally recommended cut-scores and, if necessary to recommend adjustments in cut-scores in order to accomplish accurate placement."

The ACCUPLACER CPTs measure comparable subject material. Table 2 shows the correlation between the CGP and ACCUPLACER CPTs

Table 2

Correlation Between the CGP and the ACCUPLACER CPTs

Subject Test	Correlation	Explained Variance	Probability	Number Tested
Reading	0.7324	0.5364	>.001	657
Writing	0.7350	0.5402	>.001	659
Arithmetic	0.6683	0.4466	>.001	648

The correlations between the two placement instruments are highly significant. The "explained variance" between the tests indicates the percentage of agreement between them. If the "explained variance" is high, the two placement instruments could be said to measure the same academic skills. In the above examples, the tests measure the same material between 44.66 percent and 53.64 percent of the time.

The ACCUPLACER CPTs adapt to a student's answers by adjusting the next question to be more or less difficult. This adaption to a student's ability may result in the ACCUPLACER asking subject questions which may more nearly reflect a student's academic abilities. Since the placement instruments are not exactly measuring the same things, the greater question is which makes the best placement instrument for our students?

Further, the departmentally recommended placement scores for the ACCUPLACER CPTs resulted in a placement profile which approximates the CGP. This is further discussed in the secondary research questions.

Secondary Questions

1. What ACCUPLACER CPTs placement scores would produce the same placement profile as would have been produced by administration of the CGP?

The departmentally recommended ACCUPLACER CPTs placement scores for reading, English and mathematics (stated on pages 24 to 26) produced very similar placements of students as would have been achieved with the CGP. There were very few individuals who would have been obviously misplaced.

Since academic related departments currently administer a classroom diagnostic instrument to verify or adjust a students placement, there is an opportunity for departments to change the placement of a student. The CPTs can be customized to include departmentally developed diagnostic questions. The College Board has a diagnostic arithmetic test for those who do poorly in arithmetic and a diagnostic language test for those who demonstrate a low English language proficiency.

Because of the reading, English and mathematics placement profiles for the CPT's were very similar to the CGP', adjustments to the departmentally recommended placement scores would require additional experience with the ACCUPLACER CPTs. The recommended placement scores were based on the experience and recommendations of other community college users and provide an excellent reference point from which to begin to refine the scores for application at Delaware Tech.

Table 3

Comparison of ACCUPLACER and CGP Student Placement Scores For Reading

	ACCUPLACER CPT Placement		
CGP Placement	Basic Skills	Pretech	Full Technology
Basic Skills	58	55	12
Pretech	25	111	45
Full technology	5	83	263

Total sample size for reading was 657 students.

Table 4

Comparison of ACCUPLACER and CGP Student Placement Scores For Writing

CGP Placement	ACCUPLACER CPT Placement Basic Skills	Pretech	Full Technology
Basic Skills	56	59	7
Pretech	36	103	44
Full technology	7	115	232

Total sample size for writing was 659 students.

Table 5

Comparison of ACCUPLACER and CGP Student Placement Scores For Arithmetic

CGP Placement	ACCUPLACER CPT Placement Basic Skills	Pretech	Full Technology
Basic Skills	135	52	0
Pretech	64	160	6
Full technology	10	201	20

Total sample size for Arithmetic was 648 students.

In the Tables 3, 4 and 5 the placement of students into Basic Skills, Pretech, or Full Technology shows remarkable agreement with some exceptions. If you look in each table at the numbers in the lower-left and the upper-right quadrants, you can see that some students who would have been obviously misplaced by one test or the other. For example, in the arithmetic test, Table 1.4 the ACCUPLACER CPT would have placed ten (10) "Basic Skills" students into Full Technology courses, as measured by the CGP.

Conversely, zero (0) students would have been misplaced by the CGP test. Whether this disagreement between the two instruments is important or not, will have to be determined later. The percentages of students in lower-left or upper-right quadrants are so small that they may be disregarded.

2. What differences exist in the academic profile of students entering at the different campuses?

Tables 6, 7 and 8 compare the mean scores by campus and the college for the ACCUPLACER CPTs and the CGP placement instruments.

On none of the comparisons among campuses were there significant differences in the types of students who were tested. The campuses are recruiting or attracting students of almost equal ranges of academic ability.

Table 6

Comparison of Mean Placement Scores by Campus for Reading

Campus	CGP Mean Score	Number	ACCUPLACER Mean Score	Number
Southern	43.47	221	74.03	237
Stanton	49.97	159	75.95	161
Terry	45.74	167	78.10	175
Wilmington	46.47	110	74.42	119
College	46.12	657	75.58	692
	F=1.734 P=.159		F=1.375 P=.249	

Table 7

Comparison of Mean Placement Scores by Campus for Writing

Campus	CGP Mean Score	Number	ACCUPLACER Mean Score	Number
Southern	46.44	221	79.42	237
Stanton	46.84	159	79.25	161
Terry	49.49	167	82.84	175
Wilmington	45.26	112	77.44	119
College	47.11	659	79.90	692
	F=.642 P =.588		F=1.604 P=.187	

Table 8

Comparison of Mean Placement Scores by Campus for Arithmetic

Campus	CGP Mean Score	Number	ACCUPLACER Mean Score	Number
Southern	39.81	220	54.96	236
Stanton	42.08	158	60.17	161
Terry	39.49	166	55.67	170
Wilmington	39.49	110	59.56	119
College	41.13	654	57.16	686
	F=.256	P =.256	F=1.951	P=.120

3. What are the fiscal, facility, and human resources requirements needed to administer the ACCUPLACER CPTs?

a. At the conclusion of the pilot test, a debriefing was conducted at each campus with the staff who participated in administering the placement instruments. The following includes impressions and experiences stated by College staff members.

Improved placement assessment services will cost more than has been spent on the CGP. Computers are required to administer the ACCUPLACER. At Cape Cod Community College time is regularly scheduled in the development skills math lab to do testing during the day, evening and weekends. No additional computers were purchased. However, at Harrisburg Area Community College seven (7) computers were configured in a room for use by the admissions office which processes about 4,200 students per year. A preferred arrangement would be the use of an assessment center for more than administration of placement instruments.

At the time of the pilot test only the Terry Campus had a designated Assessment Center which was regularly staffed and equipped with computer equipment. At the Wilmington Campus five (5) older model computers were configured into a network and located in a samll room. The Wilmington Campus experienced occasional power outages which interferred witht he computerized testing. The Stanton Campus had a cooperative arrangement with a computer lab to use the lab at prescheduled times to administer the ACCUPLACER CPTs. The Dean of Students at the Stanton Campus, Harriett Brown provided both Student Services staff and faculty with an orientation of the pilot test. The Southern Campus also had a cooperative arrangement to use a campus computer lab ar prescheduled times to administrer the ACCUPLACER CPTs.

b. The cost of the ACCUPLACER CPTs is another factor to be considered. The current CGP booklets have lasted many years and currently do not cost the College much more than the purchase of answer sheets. The cost of the ACCUPLACER is based on how many tests an individual would take. There are five tests in the software package which includes one (1) reading test, one (1) sentence (writing) test, and three (3) mathematics tests (arithmetic, elementary algebra, and college-level math). Most entering students will not take all five placement tests.

Most students can be expected to take the reading, sentences and arithmetic assessments with a few taking elementary algebra and very few taking college-level math. The cost for reading, sentences, arithmetic and elementary algebra is one dollar ($1.00) per administration. The cost of the college-level math is one dollar and fifty cents ($1.50) per administration. If an entering student would take all five tests, the cost would be five dollars and fifty cents ($5.50). However, most students would probably not take the college-level math which would result in four test administrations for a cost of four dollars ($4.00).

c. The use of the ACCUPLACER CPTs will require regular access to computers located in a space that can be regularly scheduled for testing. Someone will need to coordinate the scheduling and test administration (but not a test proctor). The cost of the tests administered would need to be funded.

4. Can the ACCUPLACER CPTs increase the campus and College capability to conduct institutional research related to admissions, retention, student goals, and outcomes assessment?

a. Yes, the College and the campuses could increase their research capabilities. The ACCUPLACER is an advanced software package which could increase the campus and college capability to do a number of types of institutional research. The student background data and placement scores could be directly loaded into the mainframe with very limited staff time. The time saved hand scoring and manually entering placement scores would be significant along with the increased accuracy and completeness of data. The College would need to decide whether to load the data on an on-line basis or batch data such as after each testing session. This could be done either by a direct line from the testing site file server to the mainframe or through a data disk used with a PC.

b. Use of the Computerized Placement Management Software (CPMS) would enable students to receive their background data, placement scores, course eligibility, and sample schedule at the end of a testing session. This information would be available immediately and could be taken in written form to a counselor or advisor for use in placing the student. If the information were loaded into the mainframe at the end of the testing session, it could be available through the Student Record System from the mainframe computer.

c. Research related to retention and completion of student educational goals could be conducted. Student success could be measured by the number of courses for which a student registered compared to the number of courses completed; the degree of student success could be based on the calculation of the grade point average of entering students compared to their level of placement; a profile of potentially at-risk students at the point-of-entry could be developed for which interventions could be offered prior to development of academic difficulty; and longitudinal studies could be conducted with the collected data. The College could develop research packages and subprograms or purchase research services from the College Board.

d. If all of the ACCUPLACER components were used by Delaware Tech, valuable longitudinal enrollment management data and outcomes assessment data could be effectively and efficiently generated. The ability of the College to collect, analyze and report enrollment management data would be greatly increased with the use of a computerized placement instrument.

e. If the research service were purchased from the College Board this would be an additional collegewide cost of $1,340 per year for the basic package.

5. In what ways could the use of the ACCUPLACER CPTs change the admissions process?

The representatives from Cape Cod Community College and Harrisburg Area Community College indicated that the ACCUPLACER has changed the admissions process for students. Because the paper-and-pencil placement instrument is a timed test and must be supervised, testing sessions are done by groups and require staff time to proctor the tests at a specific time during the day or evening. Whereas, the computerized placement can be scheduled individually or in small groups at any time depending on a campus's preference. Essentially, students at the time of submitting their application could make an appointment to be assessed at a future date and time or they could be immediately scheduled.

Further, if the College wanted to use the background questions as part of the admissions and application process, the use of paper applications could be limited. Also, the manual data entry time could be eliminated.

Reduced staff time is required to administer the computerized placement instrument. This time could be reallocated to improve student services personnel assistance to the students.

6. Would students react positively or negatively to the administration of a computerized placement instrument versus the paper-and-pencil CGP placement instrument?

A fourteen item "STUDENT SURVEY ON DTCC PLACEMENT TESTING" student satisfaction questionnaire was administered to each student at the end of each testing session. The instrument included thirteen objective questions and one open response question for student comments. The Wilmington Campus made some minor changes in the choices for some questions but the instrument asked the same questions. The raw data are included in APPENDIX G.

Overall, the frequency distribution for the collegewide data of student responses indicated that the level of difficulty of the ACCUPLACER CPTs reading, sentence skills, and arithmetic tests were "just about right." For those who took the algebra test, 252 students stated that it was "much too difficult" to "somewhat too difficult" versus 167 students who stated that the algebra test was "just about right" to "much too easy." The results are not surprising since the algebra test is adaptive with question of increasing difficulty which may seem to be a more challenging test. The Wilmington Campus choices for this question indicated a similar response.

Relatively few students responded that they did not feel challenged to do as well as they could on the ACCUPLACER CPTs test.

Only 34 students responded that they were "not at all" challenged versus 538 students who responded that they were "somewhat" or "very much" challenged by the computerized test. However, in comparison to the paper-and-pencil CGP test, 272 students responded that the computerized test was "about the same" while 169 responded that the computerized test was more challenging and 109 responded that the computerized test was less challenging.

Nervousness was not a major factor for most students while taking the computerized test. While 725 students responded that they were "not at all" to "somewhat" nervous, only 45 students responded that they were "very much" nervous. There were 455 students who responded that their nervousness "probably" or "definitely" did not prevent them from doing their best while 113 students responded that their nervousness "somewhat" or "definitely" prevented them from doing their best. But when the CGP paper-and-pencil test and the ACCUPLACER CPTs student responses are compared, 259 students responded that the paper-and-pencil test made them more nervous versus 76 students who responded that the ACCUPLACER CPTs made them more nervous.

There were 412 students who responded that they felt no pressure to complete ACCUPLACER CPTs test while 158 said they felt "some pressure" or "a great deal of pressure." Since there is no time limit to complete the ACCUPLACER, the reason for feeling pressure to complete the test is unclear.

Student responses indicated that the directions given by ACCUPLACER CPTs were clear and easy to follow as well as there was no difficulty in reading the material presented on the computer screen.

A very important question was, "If you had your choice, would you prefer a computerized placement test or a paper-and-pencil one?" Of the 574 responses, 428 students or 75 percent stated a preference for the ACCUPLACER CPTs and 128 or 25 percent stated a preference for the CGP paper-and-pencil test.

The open ended question provided students with a chance to provide comments. Typical positive comments included "prefer computerized test," "enjoyed computerized test," "know results right away on computerized test," "computerized test was easier and quicker," "computerized test was more relaxing" and "computers are the way to go!"

Negative student comment included "can not review my answers on computerized test," "eye strain," "directions on sentence structure were confusing," "had difficulty staying focused" and "need to minimize glare on computer screen."

Summary

In summary, using the departmentally recommended placement scores, the ACCUPLACER CPTs produced a placement profile which was remarkably similar to the CGP. There is a highly significant correlation between academic skills tested by the ACCUPLACER CPTs and the CGP. There was no significant difference in the academic profile of students entering at each of the Delaware Tech campuses.

The use of a computerized placement instrument has several advantages and disadvantages for Delaware Tech. The advantages include more convenient scheduling of placement testing for entering students, increased time for student services personnel to assist entering students, immediate availability of accurate data for counseling and advising entering students, increased accuracy and completeness of data entered into the mainframe Student Record System, reduced staff time to administer, proctor and score a paper-and-pencil instrument such as the CGP, and increased capability to do institutional research related to admissions, retention, student goals, and outcomes assessment.

Disadvantages include increased costs for computers and placement instruments along with allocation of space for the computers. In the short-run there would be the need to make changes to the admissions process and reallocation of staff time.

Students indicated on the satisfaction survey that they had little difficulty with a computerized placement instrument. Although they found the ACCUPLACER CPTs more difficult, this is not surprising since the instrument adapts in difficulty depending on how a student answers the test questions. An overwhelming number of students preferred the computerized instrument over the paper-and-pencil instrument.

Ultimately, the data raises the question, "Which assessment instrument makes the best placement instrument for Delaware Tech entering students?"

SUMMARY, DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Summary

This pilot test was conducted to determine if the ACCUPLACER CPTs could serve Delaware Tech as a comparable replacement for the currently used CGP. A result of the pilot test was to verify the accuracy of the departmentally recommended placement scores and, if necessary to recommend adjustments in placement scores in order to accomplish accurate placement.

Entering students were administered the CGP and ACCUPLACER CPTs in alternating administrations and completed a student satisfaction questionnaire. Each campus participated in the pilot test from October of 1992 to June of 1993. The raw data was submitted to the Director of Planning and Research for analysis.

Findings indicated that compared to the CGP the ACCUPLACER CPTs would be a comparable placement instrument based on the recommended placement scores of the reading, English and mathematics collegewide department chairs. Students responded that they preferred the computerized placement instrument although they did point out that they could not go back and change their answers. Continued use of the ACCUPLACER could be expected to provide additional experience and data on which to further refine the placement scores.

Further, the related literature and pilot test experience indicated that the use of other ACCUPLACER components could be expected to improve the processing of students by direct entry of student background data into the mainframe database. This could lead to limited use of the current paper applications as well as limiting the staff time needed for manual data entry time. Our pilot test experience support the idea that we can improve the speed and amount of information available with which to counsel and advise entering students, reduce the staff time required to administer placement instruments, and expand the tracking and retention research possibilities of the College.

Discussion

An effort was made to clearly answer the primary question. This research attempted to identify for reading, sentences (writing) and mathematics (arithmetic, elementary algebra, and college-level math) whether the ACCUPLACER CPTs would prove to be a comparable placement instrument based on the departmentally recommended placement scores.

Of the 657 students assessed for reading only 17 would have been obviously misplaced. Of the 659 students assessed for sentences (writing) only 14 would have been obviously misplaced. Of the 648 students assessed for mathematics only 10 would have been obviously misplaced

Secondary Research Questions

The first question inquired about what ACCUPLACER CPTs placement scores would produce the same placement profile as would have been produced by administration of the CGP. Essentially, the departmentally recommended placement scores produced a placement profile which was remarkably similar to the CGP.

The second question inquired about differences in the academic profile of students entering at the different Delaware Tech campuses. On none of the comparisons among the campuses were there significant differences in the academic profile of students recruited and admitted to each of the campuses. Entering students at the different Delaware Tech campuses have similar ranges of academic ability.

The third question inquired about the fiscal, facility and human resources required to administer a computerized placement instrument. The requirements are different than those required for the paper-and-pencil CGP. Costs would increase due to the acquisition of computers and due to the cost per administration of the computerized placement instrument. Primary trade-offs for the increased include the increased amount of student services personnel staff time available to assist students, increased convenience of scheduling placement tests for entering students, elimination of manual data entry time, increased accuracy and completeness of data entered into the mainframe

Student Record System, and increased capability for institutional research.

The fourth question inquired about whether the computerized placement instrument could increase the campus and the College capability to conduct institutional research. Clearly, the use of a computerized placement instrument which include the completion of student background questions will increase the campus and the College research capability related to admissions, retention, student goals, and outcomes assessment. The extent to which the College develops this capability will limit the enrollment management and longitudinal institutional research results.

The fifth question inquired about the ways the admissions process could be changed by the use of a computerized placement instrument. Several options exist depending on future decisions. Student background data could be collected on the computerized instrument and not on the paper application, placement instruments could be administered at the convenience of the student instead of institutionally scheduled times, results from the computerized placement instrument could be immediately available for counselors and advisors to use with students, and diagnostic instruments for academic departmental use could be used to assess students who do poorly in arithmetic and who have low English language proficiency.

The sixth and final question inquired about whether students would react positively or negatively to the administration of a computerized placement instrument versus the paper-and-pencil CGP. Students did indicate that they felt the ACCUPLACER CPTs were more difficult but this was not surprising because of the instrument's adaptive design to increase or decrease the level of difficulty based on the responses to the questions. The fact that the instrument used a computer was not a negligible factor. Overall, students preferred the computerized instrument over the paper-and-pencil instrument.

Conclusions

1. The departmentally recommended placement scores for the ACCUPLACER CPTs produced a placement profile which was remarkably similar to the CGP. There would have been very few individuals who would have been misplaced.
2. The ACCUPLACER CPTs and CGP placement instruments assess the same academic skills between 44.66 percent and 53.64 percent of the time.
3. There were no significant differences among the campuses in the academic profile of students recruited and tested.
4. The pilot test helped to identify a number of advantages related to computerized placement instrument which included increased service

and convenience for entering students, increased efficiency in data handling, and increased institutional research capability.

5. The pilot test helped to identify a number of disadvantages related to the computerized placement instrument which included increased costs for equipment, the need for dedicated space for the computers, increased assessment instrument costs, changes in the admissions process, and reallocation of staff time.

6. An overwhelming number of students preferred the computerized instrument over the pencil-and-paper instrument.

Recommendations

Recommended Practices

1. The College should implement the use of the College Board ACCUPLACER computerized software package beginning with the spring semester (1993-1994 academic year) to collect student background data, to administer the ACCUPLACER CPTs and to administer the arithmetic and English language diagnostic instruments.

2. The College should determine if the current ten dollar ($10) application fee is adequate to fund the increased cost of the placement instrument or if the application fee should be increased to fund the increased cost of the placement instrument.

3. The College should develop an overall plan of implementation.

a. A meeting should be held for the collegewide department chairs of reading, English, and mathematics with the Deans of Student Services and Deans of Instruction to review the results of the pilot test and to provide input.

b. The College should develop a plan to phase in the use of the CPTs, CPMS, PRS and PASS.

c. The College should establish an internal ACCUPLACER user group which would include representatives from the reading, English, mathematics departments, and admissions office. This user group should develop a plan for the spring 1994 semester to transition from the use of the CGP to the use of the ACCUPLACER. The user group's plan should address how to administer the placement instrument during open registration. The College should also establish active participation in the College Board's user group.

d. A meeting between the technical representatives of the College Board and the Delaware Tech Computer Service Center should be scheduled to secure technical expertise to design the data link between the personal computers and the mainframe.

4. Data system requirements should be examined and include:

   a. How to link the personal computer ACCUPLACER generated data with the Delaware Tech mainframe Burroughs A11 computer.

b. Individual student placement scores should be collected as total right scores and not as percentile scores.

c. The Student Record System should be designed to maintain original placement scores plus record post-test scores for each of the CPTs.

5. The College should implement the use of the College Board Computerized Placement Management System beginning with the fall semester of the 1994-1995 academic year to provide students and the campuses with accurate and immediately available placement data.

6. The collegewide department chairpersons of reading, English, and mathematics in cooperation with the Joint Deans of Student Services and Deans of Instruction should monitor the placement scores in order to refine them.

7. Implementation of the computerized ACCUPLACER CPTs should include the continued administration of the "STUDENT SURVEY ON DTCC PLACEMENT TESTING" to measure the level of student satisfaction. This should be done through the spring semester of the 1994-1995 academic year at which time the results should be reviewed by the users group and a decision made to terminate or continue the administration of the survey.

8. The College should determine how to fund the purchase of computers and where to allocate space for them at each campus.

9. The College should contract to use the College Board's research services for a period of two years beginning with the spring semester of the 1993-1994 academic year to determine if this is a useful and economic option for analysis of data and basic research. The research service would use the computerized placement data to conduct studies related to admissions, retention, student tracking, student goals, and outcomes assessment.

Future Research

1. After using the College Board's Placement Research Service (PRS) for a period of two years, the College should evaluate whether or not it would be cost effective to design and conduct the admissions, retention, tracking, student goals and outcomes assessment research without the support of the PRS.

2. The College should conduct additional research to identify computerized software for assessment of students such as DISCOVER (career guidance and information), Electronic-Learning And Study Strategies Inventory (E-LASSI), Myers-Briggs Type Indicator (MBTI), GED 2000 and content specific diagnostic tests.

3. The College should include the use of computerized placement instruments as part of a collegewide comprehensive outcomes assessment student flow research model.

APPENDIX A

PLACEMENT ASSESSMENT INSTRUMENT PRESENTATIONS

DELAWARE
TECH

Georgetown ■ Dover ■ Stanton ■ Wilmington

TO: Harry West

FROM: H. Earl Roberts HER

DATE: February 6, 1992

SUBJECT: Placement Assessment Instrument Presentations,
February 21, 1992

As requested by you, I have contacted individuals who are users of placement assessments and arranged for them to make presentations on February 21, 1992 to the collegewide related studies chairpersons for reading, English, and math. Both vendor representatives helped by providing a list of potential presenters.

Presenters

The following describes the two individuals who will be presenting.

Kathy Quirk, Director of Academic Advising and Testing
Hudson Valley Community College, Troy, New York

She will present her experiences in using the ACT-ASSET instrument. Dan Schaeffer of ACT indicated to me that she is responsible for the operation of an assessment center and she does all of the academic placement for reading, English, and math. Kathy is very familiar with the items on the instrument and can assist us as a user of ASSET.

Gary Getchell, Professor
Cape Cod Community College, Cape Cod, Massachusetts

He will present his experience is pilot-testing and using the ETS-ACCUPLACER instrument. He serves on the placement and developmental education committees of the American Mathematical Association of Two-Year Colleges. At Cape Cod Community College he is responsible for the developmental education program and can address the academic placement for reading, English, and math.

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1832 North DuPont Parkway, Dover, Delaware 19901 (302) 736-5321
FAX Number - 302-735-6169

Arthur Doyle of ETS indicated that Gary has been a computerized placement test committee member at ETS and can address items on the instrument as well as the paper-and-pencil alternative, New Jersey Test of College Basic Skills.

These two individuals will provide us with a users perspective. The respective company representatives have emphasized that the presenters are not salespeople nor do they receive compensation from the assessment publishers. Each instrument publisher is paying the airfare and per diem costs of their presenter for this consultation.

The Charge

Each department chairperson has been asked to examine the items on the instrument and evaluate the instrument's appropriateness in relation to the types of students who enroll at Delaware Tech. These presentations will give us a chance to ask practitioners about the items on the instruments as well as about their experiences in using the particular assessment instrument.

I understand the charge from the Deans of Instruction Minutes (January 16, 1992, Item V Miscellaneous, Item 2) to be as follows:

> Regarding the assessment instruments to be pilot tested, it was agreed if after thorough review all department chairs (reading, math and English) agree that only one instrument has any potential of meeting their need, then that is the instrument that would be piloted.

To complete this charge you indicated to me that on February 21, 1992 the related studies department chairpersons should identify a date on which they will meet to conclude their review and discussion in order to make their recommendation to the Deans of Instruction.

After the recommendation is forwarded, the Deans of Instruction would hold a joint meeting with the Deans of Student Services to discuss the placement assessment instrument recommendation. As I have understood the general discussion, there would be a College decision made by May 1992 to conduct a pilot-test of the selected instrument.

Questions in Search of Answers

The following questions are reflective of those which have been asked about the placement assessment instruments. We hope that there are many more questions asked of the presenters. Hopefully, the following will help the department chairpersons to get started with what questions they want to have answered.

- How much time does it take to administer each subject assessment (math, reading, and English)?
- Is there more than one version of the instrument?
- Should all three subject assessments be administered at the same time?
- How is the instrument used at particular campuses?

- What "cut-scores" do you use for math? reading? English? and why?
- Given that about 70 percent of Delaware Tech students need at least one developmental (precollege) course, how appropriate are the items on the instrument for assessing these types of students for math? reading? English?
- What percent of the students are generally misplaced when using instrument for math? reading? English?
- How well does the instrument measure the skill level of low ability students? high ability students?
- Can locally prepared items be included for any of the subject assessments (math, reading, and English)?
- Can the instrument be used as a diagnostic test for any or all of the subject areas?
- Can the instrument be used to do pre-test and post-test measures of student learning? How useful and accurate is the instrument to do this?
- What are the practical strengths and weaknesses of using the instrument?
- What difficulties have you experienced in using this instrument?
- Have you found other uses for the instrument?

- What is the cost of using the instrument?
- Do you have an assessment fee for students?
- What types of information can be collected in addition to placement scores?
- How can counselors use the placement assessment scores and information to counsel students?
- What kind of response should be expected from students when we begin to use this instrument?

Logistics, Friday, February 21, 1992

In order to provide a degree of professional discretion, I have located each presenter in a different conference room. The attached schedule includes the times and places. The Reading and English Department Chairpersons indicated that they were working together; therefore, I have scheduled them together as one group.

As a final request, Pat Hirschy has requested the attendance of Ruth Collins, assessment center coordinator at the Wilmington Campus and I request the attendance of Mary Lynn Houghtaling, assessment center coordinator at the Terry Campus. Please advise us if this is okay.

I appreciate the opportunity to facilitate this collegewide discussion. If there is additional information or assistance which you need, please do not hesitate to contact me.

Assessment Instrument Presentations to the Collegewide Developmental Studies Chairpersons
President's Office and Terry Campus
February 21, 1992

Time	Group	Location	Presenter
10:00 a.m. to 12:00 noon	Math Department Chairpersons	President's Office Conference Room	Kathy Quirk ACT-ASSET
	Reading/English Department Chairpersons	Science and Engineering Conference Room	Gary Getchell ETS-ACCUPLACER
12:00 noon to 1:00 p.m.	Lunch on your own		
1:00 p.m. to 2:00 p.m.	Reading/English Department	President's Office Conference Room	Kathy Quirk ACT-ASSET
	Math Department Chairpersons	Science and Engineering Conference Room	Gary Getchell ETS-ACCUPLACER
3:00 p.m.	All Department Chairpersons	President's Office Conference Room	Dr. West and/or Dr. Roberts

APPENDIX B

SAMPLE CPMS REPORTS

Sample Reports

Beginning with the Individual Student Report*, the three reports produced by CPTs are illustrated below.

Individual Student Report

COLLEGE BOARD COMPUTERIZED PLACEMENT TESTS™

REPORT FOR: SIMS, ROBERT L.

ID: 735-93-8204 Birthdate: 12/13/66 Major: 118

TEST RESULTS	TOTAL RIGHT SCORE	RANGE	PERCENTILE RANK	TEST DATE
Reading Comprehension	116	114-117	99	01/04/90
Sentence Skills	118	117-119	96	01/04/90
Arithmetic	118	117-118	>93	01/04/90
Elementary Algebra	109	104-114	88	01/04/90
College Mathematics	92	85- 99	97	01/04/90

Each test you completed was chosen from a group of 120 questions. The TOTAL RIGHT SCORE shows how many of these you could expect to answer correctly if you took a test made up of all 120 questions.

Any test score is an estimate, not an exact measure of your skills. The RANGE tells you how accurate your score is. If you took a test a second time, you could expect your new score to fall somewhere within the RANGE that is shown.

The PERCENTILE RANK compares your score with the scores of typical entering college students who completed tests composed of similar questions. For example, a PERCENTILE RANK of 99 means that your score is higher than 99 percent of the students who completed the test.

Responses to Background Questions

Years studied English in high school: 4
Years studied Mathematics in high school: 4
Studied algebra in high school: Yes
Years since last mathematics course: 1
Sex: Male
Self description: Black or African American
English first language: Yes
Disabling condition: None
Father's education: Bachelor's degree
Mother's education: Bachelor's degree

---

* The Responses to Background Questions will appear in this report only if CPTs was configured by your institution to present these questions to the student and to have them print here.

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Roster Report

COLLEGE BOARD COMPUTERIZED PLACEMENT TESTS ™

ROSTER FOR: Acorn College

ROSTER OF: Total Right Scores

FOR: All Students

SORTED BY: LAST NAME

NAME	ID	READING COMP	SENTENCE SKILLS	ARITH-METIC	ELEM ALGEBRA	COLL MATH
BERTRAM, SHERMAN C.	290-34-8324	77	60	22		
CAIN, BETTY G.	173-54-9011	94	118	89	65	62
DAVIS, ELEANOR R.	349-98-4929	116	97	113	103	83
EDWARDS, JOHN N.	348-95-9483	94	71	82	43	
GARCIA, JAMES D.	894-83-9485	67	67	108	84	62
MADISON, SAMUEL F.	023-94-8305	109	118	114	92	71
MEYERS, ELIZABETH S.	384-95-8396	79	115		76	65
SIMS, ROBERT L.	735-93-8204	116	118	118	109	92
SMITH, ROGER M.	245-84-3211	65	43	80	32	
WILLIAMS, JOAN B.	534-39-4058	120	118	56	43	39

NUMBER OF STUDENTS PROCESSED: 10

APPENDIX C

COLLEGE BOARD WORKSHOP

MEMORANDUM

TO: Deans of Student Services
Louis Barsi (Terry Campus), Chairman
Harriet Brown (Stanton Campus)
Virginia Moxley (Wilmington Campus)
Paul Selby (Southern Campus)

Deans of Instruction
Wayne Dabson (Terry Campus), Chairman
Harry West (Stanton Campus)
Connie Winner (Wilmington Campus)
Harriet Smith (Southern Campus)

FROM: H. Earl Roberts

DATE: July 24, 1992

SUBJECT: Collegewide Placement Testing Update

MEETING WITH THE COLLEGE BOARD

After coordinating with the chairmen of each Dean's group, I have arranged for them and myself to meet with Arthur Doyle of The College Board at 9:00 a.m. on Monday, August 3, 1992. Mr. Doyle will bring his director of ACCUPLACER, Ms. Lisa Dickens to assist with our discussion and negotiations. The agenda for the meeting is the following:

1. Identification of resources and services to be provided by The College Board for the collegewide pilot-test in FY93.
2. Negotiation of the costs for services and instruments related to the pilot-test for FY93.

3. Identification of available research and support services related to ACCUPLACER which could be provided by The College Board (sample reports were requested).

4. Identification of operating costs for a one year period in order to fully implement the Computerized Placement Test, ACCUPLACER, New Jersey College Basic Skills Placement Test and possible research services.

INTRODUCTION TO THE CPT

In the afternoon of August 3rd from 1:00 p.m. to 3:00 p.m., Ms. Dickens will conduct an introductory session for those who will be responsible for administering the CPT at each campus location. Either you or a designated person at your campus (either/both Instruction and Student Services) is invited to attend. Mr. Doyle indicated that Ms. Dickens can be of great help to us since she recently worked at Owenboro Community College, Kentucky.

This session will include introduction to the CPT tutorial, how to install and uninstall the CPT, discuss frequently experienced problems, and how to work with students using the CPT. If you are unable to attend or to send someone, I will understand since this is "vacation" time. I expect to have additional sessions before fully implementing the collegewide pilot-test.

I request that you call me by July 30th to advise me of who might be attending the afternoon session.

PILOT-TEST DESIGN

Mary Lynn Houghtaling (Assessment Center Coordinator, Terry Campus) and I met with John Bolig to discuss the collegewide pilot-test design. At this point in time my plan is as follows:

1. To conduct a one month pilot-test at the Terry Campus to identify what we need to do to assure a valid and reliable collegewide pilot-test. Dr. Barsi has agreed to coordinate this through his Admissions Office in cooperation with the campus' Assessment Center. The tentative dates for this mini-pilot-test are August 5th through September 4th.

2. Based on the experience and results of the mini-pilot-test, the collegewide pilot-test will be finalized for presentation to the Deans groups.

3. Preliminary plans for the collegewide pilot-test include:

    a. Participation of a minimum of 100 students per campus for each quarter (winter and spring quarters).

b. Coordination and information session at each campus to assist with set-up of facilities, adjustments to admissions processes, ACCUPLACER administration, uses of ACCUPLACER assessment data, application of cut-scores, and general problem solving and mutual support.

c. Examination of the accuracy of CPT placement cut-scores relative to CGP placement cut-scores.

d. Regular updates to the Deans groups.

After the August 3rd meeting, I expect to be able to provide you with a more complete description of the collegewide pilot-test and the support that will be provided by The College Board. In the meantime, if you have any thoughts or suggestions, please call me at 739-5791 or 739-5401.

Thank you for your patience, support and interest.

HER:km

cc: James L. Ford, Assistant to the President for College Relations
John Bolig, Director of Research and Strategic Planning

Presentation by The College Board
August 3, 1992

Present: From Delaware Tech

Dr. Louis Barsi, Dean of Student Services (Terry Campus) and Chairman of the Deans of Student Services, Mr. Wayne Dabson, Assistant Campus Director in Charge of Instruction (Terry Campus) and Chairman of the Deans of Instruction, Ms. Harriet Brown, Dean of Student Services (Stanton Campus), Ms. Virginia Moxley, Dean of Student Services (Wilmington Campus), Mr. Paul Selby, Dean of Students (Southern Campus), Mrs. Mary Lynn Houghtaling, Assessment Center Coordinator (Terry Campus), Ms. Sally Farmer, Counselor (Stanton/Wilmington Campuses), Mr. Gary Belkot, Admissions Officer (Terry Campus), and Dr. H. Earl Roberts, Student Outcomes Assessment Program Chairman (Terry Campus) and coordinator of the Collegewide placement instrument selection.

From The College Board

Mr. Arthur Doyle, Executive Director of College Level and State Services and Ms. Lisa Dickens, Director of Computerized Placement Test.

The meeting provided an opportunity to identify the level of working relationship between Delaware Tech and The College Board (TCB). After discussion of TCB services and resources, Arthur Doyle on behalf of TCB agreed to the following:

1. Arthur Doyle and Lisa Dickens will be Delaware Tech's point of contact; regional office representation will be introduced at a later date.

2. Mr. Mark Pomplin will be made available to Delaware Tech to assist with installation of the Placement Research and Retention Service.

3. At no cost to Delaware Tech we will use the ACCUPLACER (Computerized Placement Test and Computerized Placement Management System) including support for (a) the one month mini-pilot program conducted at the Terry Campus (b) the Collegewide pilot-test of the Computerized Placement Test (CPT) which will include approximately 960 entering students, and (c) one year of use at all four campuses which will include approximately 11,500 students during the 1993-1994 academic year.

4. Each campus will be provided with fifty (50) copies of the New Jersey College Basic Skills Placement Test or a total of 200 placement tests.

5. A training workshop will be conducted for the Delaware Tech users of ACCUPLACER; this is tentatively scheduled for September 24, 1992 and will be conducted at the Terry Campus Assessment Center from 9:30 a.m. to 3:30 p.m.

   The Deans of Student Services requested that Earl check with them seven to ten days in advance of the workshop (September 14th to the 17th).

6. A sample set of color coded "Notice to Students" sheets will be provided to Mary Lynn Houghtaling at Delaware Tech. The notices would be considered for use to inform students about computerized assessment.

7. Updates to the ACCUPLACER and related instructional modules/diagnostic tests will be provided as they are available.

8. Advice and guidance will be provided to assist with development of campus based assessment center administration of the ACCUPLACER.

9. Assistance with uploading ACCUPLACER data to the Delaware Tech Burroughs mainframe will be provided.

With the consent of the Chairmen of the Deans of Student Services and Deans of Instruction, H. Earl Roberts agreed to provide The College Board with the following from Delaware Tech.

1. A list of names and addresses of Delaware Tech personnel who would be ACCUPLACER users and technical support personnel will be provided to The College Board. The individuals on the list will receive ACCUPLACER and The College Board publications.

2. Delaware Tech will purchase the Placement Research and Retention Service for College Entry-Level Assessment, customized background questions will be installed in the CPT, and an optional additional six subgroup reports designed; the total of $1,340.00 will be funded by the Terry Campus Assessment Center.

3. CPT data will be submitted to The College Board for analysis.

4. The person responsible at each campus for administering the ACCUPLACER will be identified for The College Board.

Additional related topics were discussed as follows:

1. The College Board is continuing to develop related support products and services. The College Board anticipates the introduction of diagnostic instructional modules in September 1992.

2. In-course and post-test capability can be built into one use of the CPT. The data can be used by faculty for curriculum planning, outcome measures, reassessment of developmental students in order to move them out of developmental courses, and planning instruction in college-level credit courses. Further information is needed for faculty and counselor use regarding placement instruments versus diagnostic instruments.

3. A "Levels of English Proficiency" instrument is being developed to assess sentence and reading comprehension of native English speakers with limited proficiency. Further information will be provided by The College Board.

4. The cost per student of The CPT is about five dollars per student depending on the options. The current prices are as follows:

Reading	$ 1.00
Sentence	1.00
Math	
- Arithmetic	1.50
- Elementary Algebra	1.50
- College-level Math	1.50

   Because we have configured the math assessment to start at the Elementary Algebra level, students will take a maximum of two math sections.

5. Space, equipment, and personnel are a very serious need at all but the Terry Campus. The Terry Campus is currently allocating resources for space, equipment, and personnel to operate a comprehensive assessment center.

6. Lisa Dickens and Arthur Doyle advised the group that colleges which are most successful (a) form a team and work together, (b) have faculty participate in the decision-making process, (c) encourage research with the CPT adaptive instrument and (d) use a networked computer system.

There being no further discussion, the meeting was adjourned.

APPENDIX D

ACCUPLACER PILOT TEST GUIDELINES

MEMORANDUM

TO: Deans of Student Services
Dr. Louis Barsi, Chairman
Ms. Harriet Brown
Ms. Virginia Moxley
Mr. Paul Selby

Deans of Instruction
Mr. Wayne Dabson, Chairman
Dr. Connie Winner
Dr. Harry West
Dr. Harriet Smith

FROM: Dr. H. Earl Roberts

DATE: October 21, 1992

SUBJECT: Collegewide ACCUPLACER Pilot-Test

My purpose in writing to you is to (1) update you about the start-up of the collegewide ACCUPLACER pilot-test, (2) provide a copy of the pilot-test guidelines, (3) forward site coordinator material for your information, and (4) request permission to form a Delaware Tech site coordinator user network.

ACCUPLACER Pilot-Test

Thank you for your patience and cooperation as we begin to implement our collegewide pilot-test for the winter quarter. Because I was advised that each campus was in a different state of readiness, I delayed the "official" start date until Monday, October 26, 1992. At this time I understand that there are some computer hardware problems which may cause some additional difficulties. However, I am sure that all of us will be conducting computerized placement assessments with the next week.

Pilot-Test Guidelines

Attached are the guidelines which need to be used to conduct the pilot-test. They were generally discussed at the September 24th workshop conducted by the College Board. I am providing them in wiriting for your use. If you need more information or assistance, please contact me or Mary Lynn Houghtaling, Terry Campus Assessment Center Coordinator through the Terry Campus Assessment Center at 739-6186.

Please note that the "Methods and Procedures" need to be followed as closely as possible. The data from the pilot-test will be used by both Delaware Tech and the College Board. Any inconsistencies or flaws in conducting the pilot-test will lessen the value of our effort.

Administration of the ACCUPLACER Computerized Placement Test should be considered as part of Delaware Tech's student placement procedures. There was some concern whether this was an experiment. Dr. Bolig has determined that this is not an experiment since the instruments are validated and reliable instruments with are being used for the purpose for which they are intended.

Further, please note the attached letter from Lisa Dickens, CPTs/ACCUPLACER Director in which she emphasizes the need to mitigate the "Practice Effect" by alternating the order of CGP and CPT administrations by group. This is also discussed in the attached guidelines under "Methods and Procedures."

Site Coordinator Material

Included in the Pilot-Test Guidelines are materials to assist site coordinators. Inquiries have been made by the site coordinators and these materials will help to get them started.

User Network

A user network would help the site coordinators to solve mutual pilot-test problems and questions. They have been informally discussing set-up and operational issues among themselves.

I request approval from the Joint Deans of Instruction and Student Services to officially form a CPT user group to foster mutual support, sharing of expertise, coordination among site coordinators, and to provide training opportunities provided by the College Board. I suggest the group meet once a month on a rotating basis at each of the campus sites. The group would issue a newsletter to staff and faculty to inform them about the ACCUPLACER pilot-test and other assessment services that might be available.

Again, your support and cooperation has been very much appreciated. Our collegial discussions have greatly aided the pilot-test efforts.

I look forward to reporting the outcomes of the Delaware Tech CPT Pilot-Test.

Thank you.

cc: Mr. James L. Ford, Assistant to the President for College Relations
Dr. John R. Bolig, Director of Research and Strategic Planning
CPT Site Coordinators at the Wilmington, Stanton, Terry, and Southern Campuses

ACCUPLACER PILOT-TEST GUIDELINES
Delaware Technical & Community College
Winter Quarter (932)

After discussing and planning our collegewide pilot-test of ACCUPLACER, we are about to begin. The purpose of this document is to provide you with guidelines that will assist you with starting and conducting the pilot-test. Overall, the intent is to have each campus conduct the pilot-test in the same manner in order to generate comparable and meaningful data for each campus and the College as a whole.

Purpose

The **primary question** that we want to answer is whether the ACCUPLACER can serve Delaware Tech as a comparable replacement for the currently used CGP. A result of the pilot-test will be to verify the relevance of the departmentally recommended cut-scores and, if necessary to recommend adjustments in cut-scores in order to accomplish accurate placement.

Sample

The **sample of students** who will take the ACCUPLACER Computerized Placement Test for the winter quarter will consist of the same students who will take all three sections of the CGP (reading, writing, and mathematics). Students who are taking only one or two sections of the CGP should not take the ACCUPLACER CPT.

Students can be enrolling for day or evening classes as well as be full- or part-time. The sample will be stratified and analyzed by Dr. Bolig.

At the end of the winter quarter pilot-test, one-half of the students assessed should have taken the CGP first and one-half should have taken the CPT first. This can be accomplished by alternating the instrument you start with by the group being assessed, by alternating the instrument you start groups with on each day, or by alternating the instrument you start groups with for each week. At the Terry Campus we alternate by groups.

In summary, all students taking a placement assessment are to be included unless they are only taking a part of the CGP. You do not need to sort or keep track of the types of students in each group that you assess for placement.

Methods and Procedures

Based on the planning by the Joint Deans of Instruction and Student Services, input from Dr. Bolig, and the experience gained from the mini-pilot-test at the Terry Campus, the methods and procedures for the winter quarter pilot-test are as follows:

1. **Scheduling Students:** When a student needs to be assessed for placement they should be given the attached or similar form letter and statement - PLACEMENT TESTING AT DELAWARE TECH INFORMATION FOR STUDENTS. (If you want to use this we can provide a WordPerfect disk, so you can change the campus name.)

   Students need to schedule themselves for one of the four hour blocks of time scheduled for admissions testing. Our experience with the mini-pilot-test at the Terry Campus has lead us to preplan regular daytime and evening testing time blocks. The two blocks of time that are preferred are 9:00 a.m. to 1:00 p.m. and 5:00 p.m. to 9:00 p.m. When needed the time block of 12:30 p.m. to 4:30 p.m. is used.

At the Terry Campus we schedule up to three groups of ten (10) students each week which enables us to do 30 students a week. Each group starts with either the CPT or the CGP and after completing the initial test (about two hours), they switch to the other instrument. We recommend that students be given a short break between tests.

If we wanted to double the number of students assessed each week, we would need one room for the computer (CPT) testing and one room for the paper-and-pencil (CGP) testing. We could start one group of ten with the CPT in the room with the computers and one group of ten with the CGP in the other room and then switch them at the end of each instrument (about two hours). In this way we could do 60 students a week.

As we move toward the end of the fall quarter, there will probably be a need to provide more testing days for students starting in the winter quarter. We preplan for each week based on past experience. For example, instead of doing assessment three times a week we could do two sessions each day for five days a week. This would be ten sessions and we could accommodate up to 200 students in a week. We have not used Saturdays at this point in time but it is an additional option.

During open registration day, do not use the CPT. Because of the time requirement, we recognize that you need to follow your past practice for open registration day in order to admit students.

2. **Keeping Track of Appointments:** To keep track of the assessment appointments, the attached form is kept in the Admissions Office. It is labeled for the date, day of the week, and time of day. The form is kept in a three-ring binder at the admissions counter.

3. **Winter Quarter Pilot-Test Dates:** The winter quarter pilot-test will end on the last day students can register for winter quarter classes which is December 4, 1992. We will then start the spring quarter pilot-test.

4. **Site Coordinator Materials:** Attached are materials which are intended for use by the site coordinators at each campus.

a. PLACEMENT TESTING AT DELAWARE TECH INFORMATION FOR STUDENTS notice and student scheduling form letter (previously referenced) is attached. During the mini-pilot-test at the Terry Campus, we experienced no difficulty with students objecting to scheduling a four hour block of time to complete the assessment process.

b. MAJOR CODES FOR CPT ADMINISTRATION is a listing of Delaware Tech programs. Each student will need to be given their program code when they begin the CPT test. These codes are used by the CPT management system and do not effect the test. These are for use during the pilot-test and would be reviewed for use with the semester system.

c. SCREEN SET UP illustrates the configuration of the test set-up screens. The site coordinators will find these to be helpful when loading the CPT configuration on the computers.

d. STUDENT SURVEY ON DTCC PLACEMENT TESTING is a modification of the College Board and Terry Campus questions. These are given to students at the end of the testing session. (If you would like to use the same ones, we can provide a WordPerfect disk for your use.)

5. **PUBLICATIONS** from the College Board which should be available to site coordinators are listed below. There is an updated version of the CPT which will soon be available (a minor change) and if updated manuals are needed I will secure them for each site coordinator. The publications are (1) Computerized Placement Tests: Background Readings, (2) Computerized Placement Tests: Coordinator's Guide, (3) Computerized Placement Tests: User Manual, and (4) Computerized Placement Management Software: User Manual.

6. **MANAGEMENT SYSTEM** software is separate from the testing software. Our first set-up is of the testing software and at a later date we will set up the management software. The management software will use the departmentally recommended cut-scores. This can be done after we collect the CPT test data. A training session for site coordinators will be needed to configure the management software.

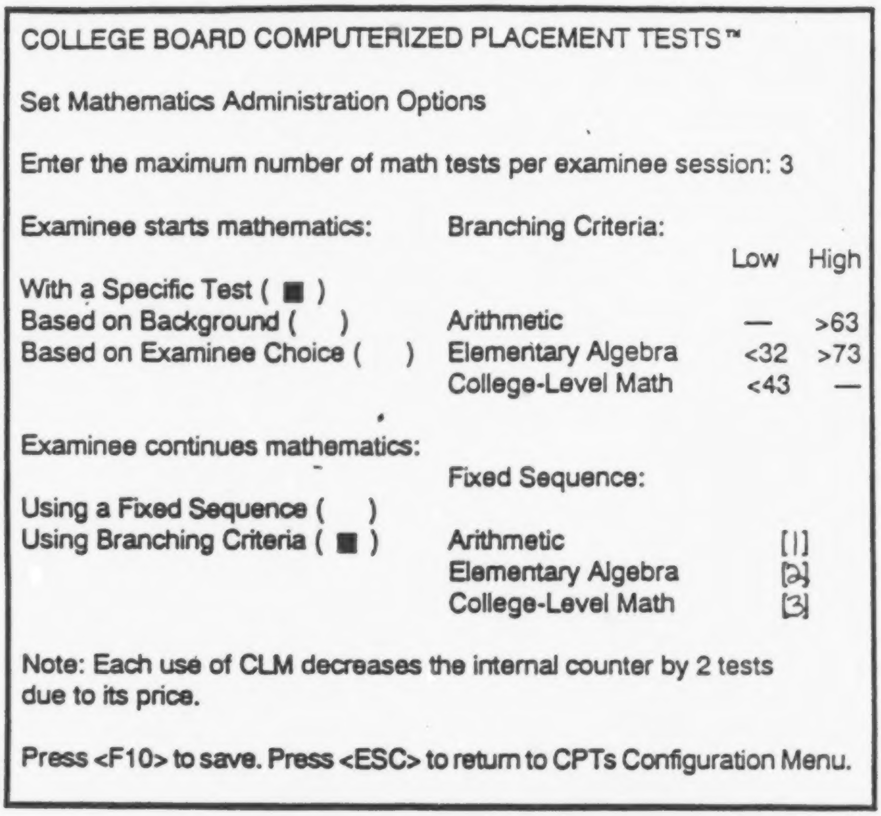
PLACEMENT TESTING AT DELAWARE TECH
INFORMATION FOR STUDENTS

Placement testing at Delaware Tech consists of two parts: a traditional paper-and-pencil assessment and a computerized assessment. Both assessments include reading, writing, and math. You should schedule a total of approximately four hours for these assessments.

The paper and pencil assessment is timed; the computerized portion is untimed. You do not need any background on the computer to be successful on the computerized placement test. It is very user friendly!

Test scores will be used by your counselor to place you into the appropriate reading, English, and mathematics courses. Please do your best! Proper placement is very important to your success at Delaware Tech!

Screen Set-Up



```
COLLEGE BOARD COMPUTERIZED PLACEMENT TESTS™

Set Mathematics Administration Options

Enter the maximum number of math tests per examinee session: 3

Examinee starts mathematics:        Branching Criteria:
                                                          Low    High
With a Specific Test ( ■ )
Based on Background (   )           Arithmetic             —     >63
Based on Examinee Choice (   )      Elementary Algebra    <32    >73
                                    College-Level Math    <43     —

Examinee continues mathematics:
                                    Fixed Sequence:
Using a Fixed Sequence (   )
Using Branching Criteria ( ■ )      Arithmetic            [1]
                                    Elementary Algebra    [2]
                                    College-Level Math    [3]

Note: Each use of CLM decreases the internal counter by 2 tests
due to its price.

Press <F10> to save. Press <ESC> to return to CPTs Configuration Menu.
```

☐ At the **Enter the maximum number of math tests per examinee session: 3** message, accept the maximum default of three (3), or decrease it if desired.

☐ Under **Examinee starts mathematics:** choose the way you wish to start mathematics testing:

- **With a Specific Test.** You may set the order of presentation of the mathematics tests as shown in the bottom right portion of this screen (Using a Fixed Sequence). The test to be given first will be the one you indicate. Specify *1*, *2*, and *3* as desired. Use an *X* to indicate that a test should not be administered.
- **Based on Background.** The appropriate mathematics test will be administered first, dependent upon answers to three of the standard mathematics experience questions from the background questions. See page 111 in the APPENDIX for the logic used by CPTs.

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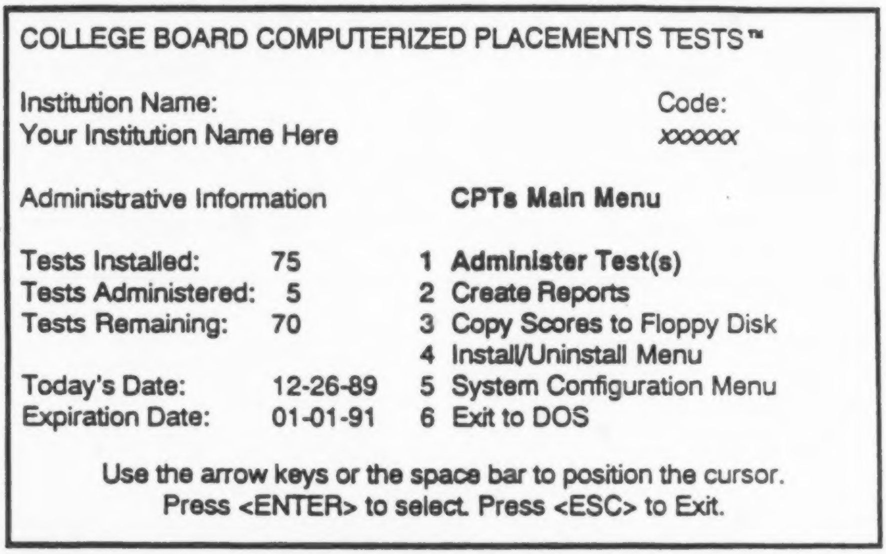
Test Administration System Procedures

In the beginning of this chapter, the CPTs **Main Menu** options were discussed. One of these options is **Administer Test(s)**. The **Main Menu** and the screen that appears when **Administer Test(s)** is selected are repeated immediately below:

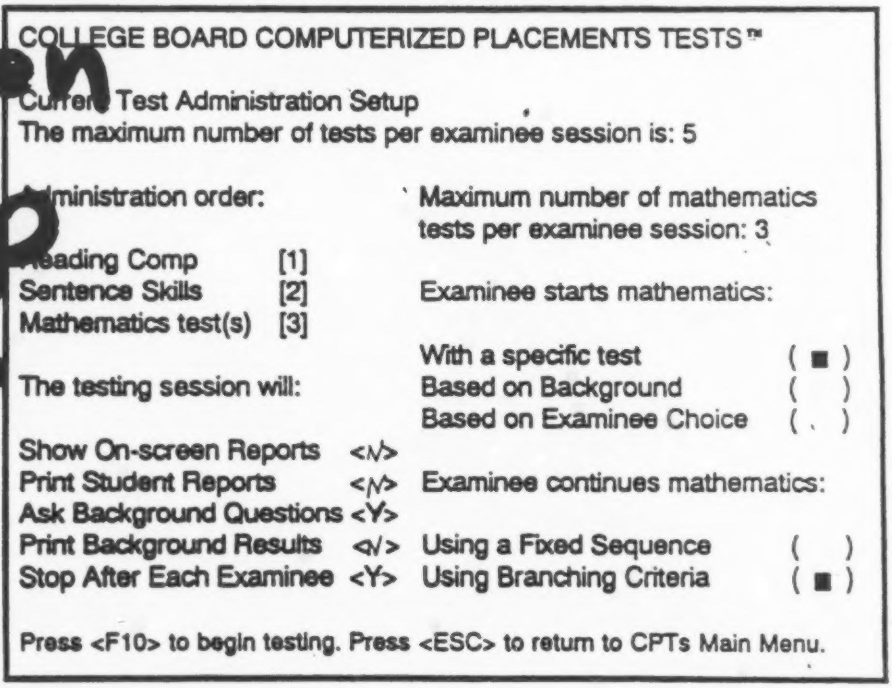


```
COLLEGE BOARD COMPUTERIZED PLACEMENTS TESTS™

Institution Name:                                   Code:
Your Institution Name Here                          xxxxxx

Administrative Information        CPTs Main Menu

Tests Installed:      75          1  Administer Test(s)
Tests Administered:    5          2  Create Reports
Tests Remaining:      70          3  Copy Scores to Floppy Disk
                                  4  Install/Uninstall Menu
Today's Date:       12-26-89      5  System Configuration Menu
Expiration Date:    01-01-91      6  Exit to DOS

       Use the arrow keys or the space bar to position the cursor.
            Press <ENTER> to select. Press <ESC> to Exit.
```

Screen

Set-up

→



```
COLLEGE BOARD COMPUTERIZED PLACEMENTS TESTS™

Current Test Administration Setup
The maximum number of tests per examinee session is: 5

Administration order:              Maximum number of mathematics
                                   tests per examinee session: 3
Reading Comp           [1]
Sentence Skills        [2]         Examinee starts mathematics:
Mathematics test(s)    [3]
                                   With a specific test          (■)
The testing session will:          Based on Background           ( )
                                   Based on Examinee Choice      ( )
Show On-screen Reports      <N>
Print Student Reports       <N>    Examinee continues mathematics:
Ask Background Questions    <Y>
Print Background Results    <N>    Using a Fixed Sequence        ( )
Stop After Each Examinee    <Y>    Using Branching Criteria      (■)

Press <F10> to begin testing. Press <ESC> to return to CPTs Main Menu.
```

MAJOR CODES FOR CPT ADMINISTRATION

ASSOCIATE DEGREE

	OLD	Program	Campus	NEW (3/2)	NEW (2/3)
1100	AS	Aeronautical Science Technology			
1101	ASAF	Aviation Flight	T	ARO AF	AS AVF
1102	ASAV	Aviation Maintenance	T	ARO AV	AS AMI
1103	ASAM	Aviation Management	T	ARO AM	AS AMA
1200	AG	Agri-Business Technology			
1201	AGHH	Horticulture	So	AGS HH	AG HOR
1202	AGPA	Production Agriculture	So	AGS PA	AG PAG
1300		Allied Health			
1301	HN	Histotechnican Technology	W	HIS	AH HIS
1302	DH	Dental Hygiene Technology	W	DHY	AH DHY
1303	MLLB	Laboratory Technology	So	MLT LB	AH LAB
1304	ML	Medical Laboratory Technology	So	MLT	AH MLT
1305	MA	Medical Office Assistant Tech	So,W	MOA	AH MOA
1306	NM	Nuclear Medicine Technology	W	NMT	AH NMT
1307	OC	Occupation Therapy Assistant Technology	So	OTA	AH OTA
1308	PY	Physical Therapist Assistant Tech	W	PTA	AH PTA
1309	RL	Radiology Technology	So,W	RAD	AH RAD
1310		Respiratory Therapy	So,W		AH RTH
1311	US	Ultrasound Technology	W	ULS	AH ULS
1312	MLVT	Veterinary Technology	So	MLT VT	AH VET
1400	AE	Architectural/Engineering Design	So @	AET	AE
1401	AEAD	Architectural Design	So @	AET AD	AE
1402	AEED	Engineering Design	So @	AET ED	AE
1403	AD	Architectural Engineering Tech	T	AET	AE
1404	ADGR	Graphic & Computer Design	T	AET GC	AE GCD
1405	ADIA	Interior Design	T	AET ID	AE ITD
1500	TA	Automotive Technology	So	AUT	AU
1501	TADT	Diesel	So	AUT DT	AU DIL
1600	BI	Bioscience Technology	St	BIO	BI
1700	BA	Business Administration Technology	W	BUS	BA
1701	BAAC	Accounting	So,T,W	BUS AC	BA ACC
1702	BABK	Banking	So,T,W	BUS BK	BA BAK
1703	BABU	Business/General	So,T	BUS BG	BA GEN
1704	BACG	Customer Service Management	W !	BUS CS	BA CSM
1705	BAHM	Hospitality Management	So	BUS HM	BA HMA
1706	BAHI	Hotel, Restaurant & Institutional Management	W,St !	BUS HR	BA HRI
1707	BAMM	Management & Marketing	So,T,W !	BUS MM	BA MMT
1800	CT	Chemical Technology	St	CHM	CH

CODE					
1900	CI	Civil Engineering Technology	St,T	CET	CI
1901		Design Option	St		CI DOT
1902		Survey/Material Option	T		CI SMO
2000	CN	Communications Technology	So	COM	CN
2100	EC	Computer Engineering Technology	T	CEN	CE
2200	CR	Computer Information Systems Tech	T,W	CIS	CS
2300	CP	Computer Technology(becomes above)	So	CIS	CS
2400	CM	Construction Management Tech	T	CMT	CM
2500	CJ	Criminal Justice Technology	So,St,T	CRJ	CJ
2501	CJSA	Security Administration	St	CRJ SA	CJ SEC
2600	MC	Electromechanial Engineering Tech	T	ELM	EM
2601	MCIE	Industrial Engineering	T	ELM IE	EM IDE
2602	MCPC	Process Technician	T	ELM PC	EM PRC
2700	EL	Electronics/Electrical Engineering Technology	St	ELC	EL
2701	ELAR	Automation Robotics	St	ELC AR	EL AUR
2702	ELBM	Biomedical	T	ELC BM	EL BIO
2703	ELEN	Electronics	So,St,T	ELC EL	EL ELR
2704	ELPI	Process Instrumentation	St	ELC PI	EL PCI
2705	ELSM	Systems Applications	T	ELC SA	EL SYA
2706	ELTC	Telecommunications	T	ELC TC	EL TLC
2800	ED	Engineering Drafting & Design Technology	St	EDT	ED
2900	ET	Engineering Technology(General)	So	ENT	ET
3000	FT	Fire Protection Engineering Tech	St	FET FT	FT
3001	SM	Safety Management Technology	St	FET SM	FT SAM
3100	FO	Food Service management Technology	St	FSM	FS
3200	HC	HVAC Engineering Design Technology	St	HVA	HC
3300	HS	Human Services Technology	So,T,W	HMS	HS
3301	HSCY	Early Childhood Development	So,T,W	HMS EC	HS ECD
3400	IE	Industrial Engineering Technology	St	IET	IE
3500	ME	Mechanical Engineering Technology	St	MET	ME
3600	NU	Associate Degree Nursing	So,St,T	NUR AN	NU ADN
3601		Evening ADN Nursing	So	NUR PM	NU PMN
3602		ADN, (2nd year)	So	NUR NS	NU NUS

3700	OT	Occupation Teacher Education Tech Technology	So,St,T,W		OTE	OT
3800	OF	Office Systems Technology	So,T,W		OFS	OS
3801	OFSY	Executive Secretarial	So,W		OFS SY	OS EXS
3802	OFSP	Executive Secretarial - Special	W		OFS SP	OS ESS
3803	OFGE	General Office Systems	So	!	OFS GO	OS GOS
3804	OFIP	Information Processing	So,W		OFS IP	OS IFP
3805	LS	Legal Assistant Technology	So	!	OFS LS	OS LAT
3900	PO	Poultry Technology	So		POS	PO
4000	RH	Refrigeration, Heating & Air Conditioning Technology	So		ACR	RH
4100	SO	Specialized Occupations	W		SPO	SO
4101	SOAS	Automotive Service Technology	St	!	SPO AS	SO AST
4102	SOJC	Chrysler-Modernized Manufacturing	St		SPO CM	SO CMM
4103	SOEP	Dual Enrollment	St		SPO DE	SO DEN
4104	SOGH	General Health Technology	So		SPO GH	SO GHT
4105	SOGM	GM-Modernized Manufacturing	St		SPO GM	SO GMM
4106	SOLT	Laser & Optics Technology	St	!	SPO LO	SO LOT
4107	SODM	Mechanical Drafting/Design Tech			SPO MD	SO MDD
4108	SOSE	Science & Engineering Tech	T		SPO SE	SO SET

! Repeated 2 digit program code
@ Now part of one program - Architectural Eng Tech

DIPLOMAS

	OLD	Program	Campus		NEW (3/2)	NEW (2/3)
		Agri-Business				
1220	AGHO	Horticulture Studies	So		AGS HO	AG HOS
		Allied Health				
1320	DAXD	Dental Assisting Studies	W	!	DHY DA	AH DAS
1321	MAMO	Medical Office Assistant Studies	So,W		MOA MO	AH MOA
1322	MAMP	Medical Transcriptionist Studies	So		MOA MP	AH MTS
1323	HLXD	Pre-Health Careers Studies	W		HLT XD	AH HLT
		Architectural Engineering				
1420	ADDA	Architectural Drafting Studies	T	!	AET AS	AE ADS
1421	ADID	Interior Decorating Studies	T	!	AET IS	AE IND
1422	ADGS	Graphic Design Studies	T		AET GS	AE GDS
		Automotive				
1520	TADS	Diesel Technicaian Studies	So		AUT DS	AU DTS
1521	TATA	Automotive Technician Studies	So		AUT TA	AU ATS

		Business Adminstration			
1720	BADK	Accounting Practice Studies	T	BUS DA	BA ACP
1721	BADB	Business Supervisory Studies	T	BUS BS	BA BSP
1722	BADD	Microcomputerized Accounting St.	T	BUS DM	BA MAC
1723	BAGD	General Business Studies	So	BUS GB	BA GEB
1724	BAHD	Hotel, Restaurant, & Institutional Management Studies	W	BUS DH	BA HRM
		Computer Engineering			
2120	ECMS	Microprocessor Studies	T	CEN MS	CE MCP
2420	CMCC	Construction Studies	T	CMT CC	CM CTS
		Electromechanical Engineering			
2620	MCFC	Fluid Control Studies	T	ELM FC	EM FCS
2621	MCMN	Manufacturing Studies	T	ELM MN	EM MAN
2622	MCRO	Robotics Studies	T	ELM RO	EM ROB
		Electronics/Electrical Eng			
2720	ELAE	Analog Electronic Studies	So	ELC AE	EL AES
2721	ELME	Microcomputer Electronics Studies	So	ELC ME	EL MCE
2722	ELSD	Electronic Studies	T	ELC SD	EL ELS
		Human Services			
3320	HSHS	Human Services Studies (Evening)	So	HMS HS	HS HSE
3321	HSCS	Early Childhood Studies	So, W	HMS CS	HS ECH
3120	FOFO	Food Service Management Studies	St	FSM FO	FS FSM
2920	ETEG	General Engineering Studies	So	ENT EG	ET GES
2220	CPGC	General Microcomputer Studies	So	CIS GC	CS GMS
		Refrigeration, Heating & AC			
4020	RHFR	Refrigeration & Air Conditioning	So	ACR FR	RH RAC
4221	RHHA	Heating & Air Conditioning St	So	ACR HA	RH HAC
4220		Heavy Equipment			
4221	HETD	Heavy Equipment/Tractor Trailer	So	HEQ TD	HE HET
4222	HEHE	Heavy Equipment Operator Studies	So	HEQ HE	HE HEO
3420	IESV	Industrial Supervision Studies	St	IET SV	IE ISS
3720	OTXD	Occupational Teacher Education St.	T	OTE XD	OT OTS
		Office Systems			
3820	OFCL	Clerical Studies	So, T	OFS CL	OS CLS
3821	OFST	Stenographic Studies	So, T	OFS ST	OS STS
3822	OFWP	Word Processing Studies	So, T, W	OFS WP	OS WPS
4320	PNXD	Practical Nursing Studies	So, T	NUR PN	NU PNS
		Specialized Occupations			

4120	SOGL	General Health Studies	So	SPO GL	SO GHS
4121	SOLD	Laser & Optics Studies	St	SPO LD	SO LOS
1920	CISU	Surveying Studies	T	CET SU	CI SUR

¦ Repeated 2 digit program code

CERTIFICATE

	OLD	Program	Campus	NEW (3/2)	NEW (2/3)
		Agri-Business			
1230	AGLA	Landscape Design	So	AGS LA	AG LAD
1231	AGPO	Plant & Soil	So	AGS PO	AG PSO
1232	AGTM	Turf Management	So	AGS TM	AG TUM
		Allied Health			
1330	MLPH	Phlebotomy	So	MLT PH	AH PHL
		Automotive			
1530	TAAN	Auto A/C Technician	So	AUT AN	AU AAC
1531	TADN	Diesel Engine Technician	So		AU DET
1532	TAEL	Electrical System Technician	So ¦	AUT EL	AU EST
1533	TAGA	General Auto Technician	So	AUT GA	AU GAT
1534	TAGT	General Diesel Technician	So	AUT GT	AU GDT
1539	TART	Diesel, A/C & Refr. Technician	So	AUT RT	AU DAC
1536	TASB	Auto Brakes/Suspension Tech	So	AUT SB	AU BST
1537	TATE	Auto Engine Technician	So	AUT TE	AU AET
1538	TATP	Auto Power-Train Technician	So	AUT TP	AU APT
1539	TATU	Tune-up/Emission Technician	So	AUT TU	AU TET
		Business			
1730	BACB	Business Supervision	T	BUS CB	BA BSU
1731	BACD	Microcomputerized Accounting	T	BUS CD	BA MCA
1732	BACK	Accounting Practice	T	BUS CK	BA APR
1733	GD	General Business		BUS GD	BA CSU
		Computer Engineering			
2130	ECMI	Microprosser Information	T	CEN MI	CF MPI
		Computer Information Systems			
2230	CRXK	COBOL	T	CIS XR	CS COS
2231	CRXM	Mircoprocessing	T	CIS XM	CS [illegible]
2232	CRXR	RPG	T	CIS XR	CS RPG
		Fire Proctection			
3030	FTFD	Professional Development		FET FD	FT [illegible]
3031	FTFI	Fire Codes Interprt		FET FI	FT FCI
3032	FTFP	Protection System Design		FET FP	FT PSD
3033	FTFS	Sprinkler System Design		FET FS	FT SSD
3034	SMIS	Industrial Safety	¦	FET IS	FT IDS

3035	SMLL	Fire Loss Control			FET LL	FT FLC
3036	SMOH	Occupational Health			FET OH	FT OCH
4230	HE	Heavy Equipment Operator				
4231	HEBF	Fundamentals of Backhoe	So		HEQ BF	HE FBH
4232	HEBV	Advanced Backhoe	So		HEQ BV	HE ABH
4233	HECF	Fundamentals of Crane	So		HEQ CF	HE FCR
4234	HECV	Advanced Crane	So	!	HEQ CV	HE ACR
4235	HECX	Excavatr Crane Operator	So		HEQ CX	HE ECO
4236	HEDO	Dump Truck Operator	So		HEQ DO	HE DTO
4237	HEFL	Forklift Operator	So		HEQ FL	HE FLO
4238	HEGF	Fundamentals of Motor Grader	So		HEQ GF	HE FMG
4239	HEGO	Gradall Operator	So	!	HEQ GO	HE GAO
4240	HEGV	Advanced Motor Grader	So		HEQ GV	HE AMG
4241	HELO	Front End Loader	So	!	HEQ LO	HE FEL
4242	HEPM	Preventive & Running Maintance	So	!	HEQ PM	HE PRM
4243	HERL	Roller Operator	So		HEQ RL	HE RLO
4244	HETO	Crawler Tractor Dozer Operator	So		HEQ TO	HE CTD
		Human Services				
3330	HSCH	Child Care	T		HMS CH	HS CHC
3331	HSRC	Residential Care & Services	T		HMS RC	HS RCS
		Office Systems				
3830	LSLS	Legal Assistant	So	!	OFS LS	OS LEA
3831	OFXC	Word Processing	T		OFS XC	OS WPR
		Refrig, Heating & A/C				
4030	RHCA	Air Conditioning	So		ACR CA	RH AIR
4031	RHCR	Commerical Refrigeration	So		ACR CR	RH CMR
4032	RHHT	Heating	So		ACR HT	RH HTG
		Specialized Occupations				
4130	SOGN	General Health	So		SPO GN	SO GNH
4131	SOLC	Laser & Optics			SPO LC	SO LAO
4330	TD	Tractor Trailer Driver Training			TTD	TT

! Repeated 2 digit program code

POOLS

OLD	Program	Campus	NEW (3/2)	NEW (2/3)
	Nursing Pools			
100	Practical Nursing	T	NPO PN	NP PNP
200	Associate Degree Nursing	St,T	NPO AN	NP ANP
300	Combined PN & ADN	So	NPO NR	NP CPA
400	Pre-Tech, PN & ADN	So	NPO PR	NP CPT
500	Pre-Tech, PN	T	NPO PT	NP PPN
600	Pre-Tech, ADN	T	NPO AP	NP PAN

OTHERS

	OLD	Program	Campus	NEW (3/2)	NEW (2/3)
		Non-Degree Seeking			
700	ND	Non-Matriculated		NMT	ND
701	NDAB	American Institute of Banking		NMT AB	ND AIB
702	NDDC	Delcastle High School		NMT DC	ND DLC
703	NDHG	Hodgson Voc Tech High School		NMT HG	ND HVT
704	NDHL	High School Student		NMT HL	ND HST
705	NDHR	Howard Career Center		NMT HR	ND HCC
706	NDKV	Kent Vo-Tech North		NMT KV	ND KVN
707	NDMA	Mail in Registration		NMT MA	ND MAI
708	NDOR	Community Outreach		NMT OR	ND COR
709	NDSG	Secretarial Grant		NMT SG	ND SEG
710	NDSH	Scholarship High School Student		NMT SH	ND SHS
9999	UD	Un-Declared		UND	UD

STUDENT SURVEY ON DTCC PLACEMENT TESTING

Please take a few minutes of your time to help us evaluate your reaction to the Computerized Placement Test. Your answers will be strictly confidential. You will be helping us to develop testing procedures that will be most beneficial to our students. As you are answering the questions, please place a "✓" in the circle which best describes how you feel.

1. How difficult was the Reading Comprehension part of the Computerized Placement Test for you?

   ○ Much too difficult
   ○ Somewhat too difficult
   ○ Just about right
   ○ Somewhat too easy
   ○ Much too easy
   ○ Did not take

2. How difficult was the sentence skills part of the computerized test for you?

   ○ Much too difficult
   ○ Somewhat too difficult
   ○ Just about right
   ○ Somewhat too easy
   ○ Much too easy
   ○ Did not take

3. How difficult was the arithmetic test of the computerized placement test for you?

   ○ Much too difficult
   ○ Somewhat too difficult
   ○ Just about right
   ○ Somewhat too easy
   ○ Much too easy
   ○ Did not take

4. How difficult was the algebra test of the computerized placement test for you?

   ○ Much too difficult
   ○ Somewhat too difficult
   ○ Just about right
   ○ Somewhat too easy
   ○ Much too easy
   ○ Did not take

5. Did you feel challenged to do as well as you could on the computerized placement test?

○ Not at all
○ Somewhat
○ Very much

6. In comparison with the paper and pencil CGP Placement Test which you also took, did you find the computerized test...

○ More challenging than a paper and pencil test
○ About the same
○ Less challenging than a paper and pencil test

7. Were you nervous when taking the computerized test?

○ Not at all
○ Somewhat
○ Very much

8. Did nervousness while taking the computerized test prevent you from doing your best?

○ Yes, definitely
○ Yes, somewhat
○ Probably not
○ Definitely not

9. Which would make you more nervous, a paper and pencil test or a computerized administered test?

○ A paper and pencil test
○ A computer-administered test
○ They'd be about the same

10. Did you feel any pressure to complete the computerized test quickly?

○ Yes, a great deal of pressure
○ Yes, some pressure
○ None

11. Were the directions given by the computer clear and easy to follow?

○ Yes, very clear
○ Reasonably clear
○ No, not very clear

12. Did you have any difficulty reading the material presented on the computer screen?

○ Yes
○ No

13. If you had your choice, would you prefer a computerized placement test or a paper and pencil one?

○ Computerized
○ Paper and pencil

14. Do you have any comments about either placement test that you'd like us to know about?

APPENDIX E

DEPARTMENTAL PLACEMENT SCORE RECOMMENDATIONS

MEMO

TO: Harry J. West, Chairperson
Joint Deans of Instruction

FROM: English/Reading Chairs
SUBJECT: Assessment Instrument Recommendations

DATE: April 10, 1992

Our English/Reading Assessment Committee members are recommending that our Institution proceed with pilot testing of each of the instruments we examined. We appreciate the standards of excellence practiced by both testing services and the support services they offer to subscribing institutions.

Our recommendation is for the College Board CPTS's Accuplacer to be piloted in conjunction with the NJCBSPT pencil and paper test for a definite period of time beginning in the fall. At a later date, when the ACT ASSET's computerized version is available, we want it tested along with the pencil and paper version for a corresponding period of time.

In addition, we are requesting the opportunity to examine the study skills component of these tests.

Justification for our recommendation and suggested cutoff scores follow.

JUSTIFICATION FOR RECOMMENDATION OF A CPTS

- * An adaptive instrument allows the selection of questions at a difficulty level based on the response to previous questions.
- * An adaptive instrument allows the calculation of scores according to item difficulty.

--Gives a more accurate measure of student ability.
--Provides immediate results.
--Reduces problems of test security.
--Reduces reactions of frustration and boredom for test takers by challenging without discouraging.
--Moderates problems of paper handling.
--Can provide item analysis for diagnostic and prescriptive purposes.
--Can be modified to include other information such as other predictors of success.
--Provides more specific advisement information.
--Includes program and hotline support.
--Is normed nationally in two-year colleges.

With all versions of these instruments, the collected information can be manipulated for research and planning purposes.

On all tests, we recommend the following scores for placement into English and reading courses at the appropriate levels. However, we are requesting that a three-point spread above and below that point be designated for English/Reading departments to have the latitude of making advisement recommendations for students in this category. We selected these scores based on proficiency statements provided by the respective testing services.

50 and above percentile to enroll in college-level courses

15 to 49 percentile to enroll in pre-tech level courses

1 to 14 percentile to enroll in basic level courses

We further recommend that other or additional services be provided for students who score at the 0 percentile level. For the most part, we feel we cannot provide adequately for these students' needs.

We are available if you need further information from us.

TO: DR. HARRY J. WEST
JOINT DEANS OF INSTRUCTION

FROM: MATH DEPARTMENT CHAIRPERSONS
MYRNA ABBOTT DWIN BOHN DRB
PAT HIRSCHY PH PAT PASTORE

RE: RECOMMENDATIONS FOR STUDENT ASSESSMENT INSTRUMENT

DATE: APRIL 13, 1992

The Mathematics Department chairpersons recommend that Delaware Tech pilot test the College Board Computerized Placement and the New Jersey Basic Skills Tests as soon as the pilot test plans are completed. We encourage pilot testing the ACT ASSET test when both the computerized and paper/pencil forms are available. We support the justifications offered by the English/Reading chairpeople in their memo to you dated April 10, 1992.

Following are our recommendations regarding cutoff scores, pilot test plans, and assessment policies and procedures. Please feel free to contact us if you have any questions or need further information.

CUTOFF SCORES

We recommend the following cutoff percentile scores for the CPT and the New Jersey Basic Skills Tests:

	005	051	099, 115 130, 131, HS 247	All first level degree math courses
Arithmetic	< 20	21-80	> 80	
Algebra score			< 70	> 70

Our recommendations are based on the requirement that all students will initially take the arithmetic test forms. Students will take the algebra test forms only if the arithmetic scores are greater than 80.

PILOT TEST PLANNING

The Math Department chairpersons believe that the pilot test process will require careful planning prior to implementation. Questions to be addressed include:

1). Will the pilot test be a population or a sample study?

2). Will Nursing and other technologies currently using the CGP scores for student ranking require additional information?

JUSTIFICATION FOR RECOMMENDATION OF A CPTS

* An adaptive instrument allows the selection of questions at a difficulty level based on the response to previous questions.

* An adaptive instrument allows the calculation of scores according to item difficulty.

--Gives a more accurate measure of student ability.
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APPENDIX F

TERRY CAMPUS MINI-PILOT TEST

ACCUPLACER
Mini-Pilot-Test
Terry Campus
August 5, 1992 to September 4, 1992

The Terry Campus will conduct a mini-pilot-test for use of the Computerized Placement Test (CPT) between August 5 and September 4, 1992. The purpose of the pilot-test is to identify and develop pilot-test procedures for implementation of the collegewide CPT pilot-test. Ultimately, the primary question to be answered is whether students are accurately placed by the departmentally recommended CPT placement cut-scores. A recommendation for any adjustment of placement cut-scores will be provided.

The sample will be stratified by selection of 40 high school graduates from the class of 1992, 40 transfer students who have attended another college and earned credits for at least one academic term, and 40 students who are over 25 years of age who are first-time college students. Students in each of the three categories can be day or evening, male or female, and full-or part-time.

Selection of participants in the sample will be on the basis of the first 40 students admitted in each category after August 3, 1992. They will be referred to the Assessment Center for placement testing which will include administration of the CGP and scheduling of subsequent CPT assessment.

Placement of students in their academic courses will be based solely on the student's CGP score and by strictly following the CGP placement cut-score criteria. The students' CGP placement scores will be correlated with the recommended CPT cut-scores to determine whether students would be placed in the same courses with the CPT as they were placed in with the CGP.

Procedures will include a follow-up questionnaire to students to collect their reactions and perceptions of computerized placement assessment.

Observations:

- Academic departments will administer their own diagnostic test as they have done in the past.
- The sample is limited to those who are being admitted within one month of the beginning of the quarter.

APPENDIX G

STUDENT SURVEY ON DTCC PLACEMENT TESTING

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   ○ Somewhat too easy
   ○ Much too easy
   ○ Did not take

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   ○ Much too easy
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○ Yes, somewhat
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○ A computer-administered test
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○ Yes, some pressure
○ None

11. Were the directions given by the computer clear and easy to follow?

○ Yes, very clear
○ Reasonably clear
○ No, not very clear

12. Did you have any difficulty reading the material presented on the computer screen?

○ Yes
○ No

13. If you had your choice, would you prefer a computerized placement test or a paper and pencil one?

○ Computerized
○ Paper and pencil

14. Do you have any comments about either placement test that you'd like us to know about?

TOTAL COLLEGE RESPONSES

```
ITEM1

                                                               VALID     CUM
  VALUE LABEL                  VALUE  FREQUENCY    PERCENT   PERCENT   PERCENT

                                   1         12        2.1       2.1       2.1
                                   2        128       22.3      22.3      24.4
                                   3        407       70.9      71.0      95.5
                                   4         26        4.5       4.5     100.0
                                   .          1         .2   MISSING
                                      -------    -------   -------
                               TOTAL        574      100.0     100.0

VALID CASES      573       MISSING CASES       1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM2

                                                               VALID     CUM
  VALUE LABEL                  VALUE  FREQUENCY    PERCENT   PERCENT   PERCENT

                                   1          7        1.2       1.2       1.2
                                   2        150       26.1      26.2      27.4
                                   3        378       65.9      66.0      93.4
                                   4         37        6.4       6.5      99.8
                                   5          1         .2        .2     100.0
                                   .          1         .2   MISSING
                                      -------    -------   -------
                               TOTAL        574      100.0     100.0

VALID CASES      573       MISSING CASES       1


ITEM3

                                                               VALID     CUM
  VALUE LABEL                  VALUE  FREQUENCY    PERCENT   PERCENT   PERCENT

                                   1         21        3.7       3.7       3.7
                                   2        140       24.4      24.4      28.1
                                   3        332       57.8      57.9      86.0
                                   4         71       12.4      12.4      98.4
                                   5          9        1.6       1.6     100.0
                                   6          1         .2   MISSING
                                      _______    _______   _______
                                            574      100.0     100.0
                               TOTAL

VALID CASES      573       MISSING CASES       1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM4

                                                               VALID     CUM
  VALUE LABEL                  VALUE  FREQUENCY    PERCENT   PERCENT   PERCENT

       -                           1         86       15.0      15.4      15.4
                                   2        166       28.9      29.7      45.2
                                   3        149       26.0      26.7      71.9
                                   4         16        2.8       2.9      74.7
                                   5          2         .3        .4      75.1
                                   6        139       24.2      24.9     100.0
                                   .         16        2.8   MISSING
                                      _______    _______   _______
                               TOTAL        574      100.0     100.0

VALID CASES      558       MISSING CASES      16
```

```
ITEM5

                                                           VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT   PERCENT  PERCENT

                                 1         34      5.9       5.9      5.9
                                 2        244     42.5      42.7     48.6
                                 3        294     51.2      51.4    100.0
                                 .          2       .3   MISSING
                                    -------   -------   -------
                             TOTAL        574    100.0     100.0

VALID CASES     572      MISSING CASES     2

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM6

                                                           VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT   PERCENT  PERCENT

                                 1        169     29.4      30.7     30.7
                                 2        272     47.4      49.5     80.2
                                 3        109     19.0      19.8    100.0
                                 .         24      4.2   MISSING
                                    -------   -------   -------
                             TOTAL
                                          574    100.0     100.0
VALID CASES     550      MISSING CASES     24

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM7

                                                           VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT   PERCENT  PERCENT

                                 1        309     53.8      54.1     54.1
                                 2        216     37.6      37.8     91.9
                                 3         45      7.8       7.9     99.8
                                 4          1       .2        .2    100.0
                                 .          3       .5   MISSING
                                    -------   -------   -------
                             TOTAL        574    100.0     100.0

VALID CASES     571      MISSING CASES     3


ITEM8

                                                           VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT   PERCENT  PERCENT

                                 1         18      3.1       3.2      3.2
                                 2         95     16.6      16.7     19.9
                                 3        247     43.0      43.5     63.4
                                 4        208     36.2      36.6    100.0
                                 .          6      1.0   MISSING
                                    -------   -------   -------
                             TOTAL        574    100.0     100.0

VALID CASES     568      MISSING CASES     6
```

```
                                                        VALID     CUM
VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1        259     45.1     45.6     45.6
                               2         76     13.2     13.4     59.0
                               3        233     40.6     41.0    100.0
                               .          6      1.0  MISSING
                                    -------  -------  -------
                           TOTAL        574    100.0    100.0

VALID CASES     568     MISSING CASES     6

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM10

                                                        VALID     CUM
VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1         21      3.7      3.7      3.7
                               2        137     23.9     24.0     27.7
                               3        412     71.8     72.3    100.0
                               .          4       .7  MISSING
                                    -------  -------  -------
                           TOTAL        574    100.0    100.0

VALID CASES     570     MISSING CASES     4


ITEM11

                                                        VALID     CUM
VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1        489     85.2     85.6     85.6
                               2         74     12.9     13.0     98.6
                               3          8      1.4      1.4    100.0
                               .          3       .5  MISSING
                                    -------  -------  -------
                           TOTAL        574    100.0    100.0

VALID CASES     571     MISSING CASES     3

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM12

                                                        VALID     CUM
VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1         72     12.5     12.7     12.7
                               2        495     86.2     87.1     99.8
                               3          1       .2       .2    100.0
                               .          6      1.0  MISSING
                                    -------  -------  -------
                           TOTAL        574    100.0    100.0

VALID CASES     568     MISSING CASES     6

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM13

                                                        VALID     CUM
VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1        428     74.6     76.8     76.8
                               2        128     22.3     23.0     99.8
                               3          1       .2       .2    100.0
                               .         17      3.0  MISSING
                                    -------  -------  -------
                           TOTAL        574    100.0    100.0

VALID CASES     557     MISSING CASES    17
```

SOUTHERN CAMPUS RESPONSES

```
ITEM1

                                                    VALID     CUM
  VALUE LABEL               VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1          6      2.3      2.3      2.3
                                2         66     25.1     25.1     27.4
                                3        183     69.6     69.6     97.0
                                4          8      3.0      3.0    100.0
                                    -------  -------  -------
                            TOTAL        263    100.0    100.0

VALID CASES      263       MISSING CASES      0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM2

                                                    VALID     CUM
  VALUE LABEL               VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1          5      1.9      1.9      1.9
                                2         74     28.1     28.1     30.0
                                3        163     62.0     62.0     92.0
                                4         21      8.0      8.0    100.0
                                    -------  -------  -------
                            TOTAL        263    100.0    100.0

VALID CASES      263       MISSING CASES      0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM3

                                                    VALID     CUM
  VALUE LABEL               VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         12      4.6      4.6      4.6
                                2         75     28.5     28.5     33.1
                                3        134     51.0     51.0     84.0
                                4         37     14.1     14.1     98.1
                                5          5      1.9      1.9    100.0
                                    -------  -------  -------
                            TOTAL        263    100.0    100.0

VALID CASES      263       MISSING CASES      0

 ITEM4

                                                    VALID     CUM
  VALUE LABEL               VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         42     16.0     16.4     16.4
                                2         67     25.5     26.2     42.6
                                3         65     24.7     25.4     68.0
                                4          9      3.4      3.5     71.5
                                5          2       .8       .8     72.3
                                6         71     27.0     27.7    100.0
                                .          7      2.7  MISSING
                                    -------  -------  -------
                            TOTAL        263    100.0    100.0

 VALID CASES      256       MISSING CASES      7
```

```
ITEM5

                                                          VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                 1         14      5.3      5.3      5.3
                                 2        124     47.1     47.3     52.7
                                 3        124     47.1     47.3    100.0
                                 .          1       .4  MISSING
                                      -------  -------  -------
                             TOTAL        263    100.0    100.0

VALID CASES      262      MISSING CASES       1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM6

                                                          VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                 1         98     37.3     37.4     37.4
                                 2        112     42.6     42.7     80.2
                                 3         52     19.8     19.8    100.0
                                 .          1       .4  MISSING
                                      -------  -------  -------
                             TOTAL        263    100.0    100.0

VALID CASES      262      MISSING CASES       1

ITEM7

                                                          VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                 1        144     54.8     55.0     55.0
                                 2         97     36.9     37.0     92.0
                                 3         21      8.0      8.0    100.0
                                 .          1       .4  MISSING
                                      -------  -------  -------
                             TOTAL        263    100.0    100.0

VALID CASES      262      MISSING CASES       1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM8

                                                          VALID     CUM
  VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                 1          9      3.4      3.4      3.4
                                 2         41     15.6     15.6     19.1
                                 3        118     44.9     45.0     64.1
                                 4         94     35.7     35.9    100.0
                                 .          1       .4  MISSING
                                      -------  -------  -------
                             TOTAL        263    100.0    100.0

VALID CASES      262      MISSING CASES       1

         - - - - - - -     - - -
```

```
ITEM9

                                                      VALID     CUM
 VALUE LABEL           VALUE  FREQUENCY   PERCENT   PERCENT   PERCENT

                           1        116      44.1      44.6      44.6
                           2         36      13.7      13.8      58.5
                           3        108      41.1      41.5     100.0
                           .          3       1.1   MISSING
                                -------   -------   -------
                       TOTAL        263     100.0     100.0

VALID CASES     260      MISSING CASES     3


ITEM10

                                                      VALID     CUM
 VALUE LABEL           VALUE  FREQUENCY   PERCENT   PERCENT   PERCENT

                           1         11       4.2       4.2       4.2
                           2         59      22.4      22.5      26.7
                           3        192      73.0      73.3     100.0
                           .          1        .4   MISSING
                                -------   -------   -------
                       TOTAL        263     100.0     100.0

VALID CASES     262      MISSING CASES     1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM11

                                                      VALID     CUM
 VALUE LABEL           VALUE  FREQUENCY   PERCENT   PERCENT   PERCENT

                           1        227      86.3      86.6      86.6
                           2         32      12.2      12.2      98.9
                           3          3       1.1       1.1     100.0
                           .          1        .4   MISSING
                                -------   -------   -------
                       TOTAL        263     100.0     100.0

VALID CASES     262      MISSING CASES     1
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
ITEM12

  VALUE LABEL                VALUE  FREQUENCY  PERCENT   VALID     CUM
                                                        PERCENT  PERCENT

                                 1         27     10.3     10.3     10.3
                                 2        235     89.4     89.7    100.0
                                 .          1       .4  MISSING
                                      -------  -------  -------
                             TOTAL        263    100.0    100.0

VALID CASES      262      MISSING CASES      1


ITEM13

  VALUE LABEL                VALUE  FREQUENCY  PERCENT   VALID     CUM
                                                        PERCENT  PERCENT

                                 1        196     74.5     75.7     75.7
                                 2         63     24.0     24.3    100.0
                                 .          4      1.5  MISSING
                                      -------  -------  -------
                             TOTAL        263    100.0    100.0

VALID CASES      259      MISSING CASES      4
```

STANTON CAMPUS RESPONSES

```
ITEM1

                                                    VALID     CUM
VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                            1          2      1.3      1.3      1.3
                            2         36     24.0     24.2     25.5
                            3        101     67.3     67.8     93.3
                            4         10      6.7      6.7    100.0
                            .          1       .7  MISSING
                                 -------  -------  -------
                        TOTAL        150    100.0    100.0

VALID CASES     149      MISSING CASES      1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM2

                                                    VALID     CUM
VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                            2         40     26.7     26.8     26.8
                            3        100     66.7     67.1     94.0
                            4          9      6.0      6.0    100.0
                            .          1       .7  MISSING
                                 -------  -------  -------
                        TOTAL        150    100.0    100.0

VALID CASES     149      MISSING CASES      1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM3

                                                    VALID     CUM
VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                            1          4      2.7      2.7      2.7
                            2         27     18.0     18.0     20.7
                            3         98     65.3     65.3     86.0
                            4         19     12.7     12.7     98.7
                            5          2      1.3      1.3    100.0
                                 -------  -------  -------
                        TOTAL        150    100.0    100.0

VALID CASES     150      MISSING CASES      0



ITEM4

                                                    VALID     CUM
VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                            1         15     10.0     10.3     10.3
                            2         63     42.0     43.4     53.8
                            3         51     34.0     35.2     89.0
                            4          3      2.0      2.1     91.0
                            6         13      8.7      9.0    100.0
                            .          5      3.3  MISSING
                                 -------  -------  -------
                        TOTAL        150    100.0    100.0

VALID CASES     145      MISSING CASES      5
```

```
                                                              VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1          9      6.0      6.0      6.0
                                2         57     38.0     38.0     44.0
                                3         84     56.0     56.0    100.0
                                     -------  -------  -------
                            TOTAL        150    100.0    100.0

VALID CASES     150     MISSING CASES     0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM6

                                                              VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         28     18.7     21.7     21.7
                                2         74     49.3     57.4     79.1
                                3         27     18.0     20.9    100.0
                                .         21     14.0  MISSING
                                     -------  -------  -------
                            TOTAL        150    100.0    100.0

VALID CASES     129     MISSING CASES    21

ITEM7

                                                              VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         68     45.3     45.3     45.3
                                2         69     46.0     46.0     91.3
                                3         13      8.7      8.7    100.0
                                     -------  -------  -------
                            TOTAL        150    100.0    100.0

VALID CASES     150     MISSING CASES     0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM8

                                                              VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1          7      4.7      4.7      4.7
                                2         33     22.0     22.3     27.0
                                3         63     42.0     42.6     69.6
                                4         45     30.0     30.4    100.0
                                .          2      1.3  MISSING
                                     -------  -------  -------
                            TOTAL        150    100.0    100.0

ITEM9

                                                              VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         58     38.7     38.9     38.9
                                2         25     16.7     16.8     55.7
                                3         66     44.0     44.3    100.0
                                .          1       .7  MISSING
                                     -------  -------  -------
                            TOTAL        150    100.0    100.0

VALID CASES     149     MISSING CASES     1
```

```
ITEM10

                                                         VALID     CUM
 VALUE LABEL              VALUE  FREQUENCY   PERCENT   PERCENT   PERCENT

                              1          5       3.3       3.4       3.4
                              2         54      36.0      36.2      39.6
                              3         90      60.0      60.4     100.0
                              .          1        .7   MISSING
                                   -------   -------   -------
                          TOTAL        150     100.0     100.0

VALID CASES      149      MISSING CASES      1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ITEM11

                                                         VALID     CUM
 VALUE LABEL              VALUE  FREQUENCY   PERCENT   PERCENT   PERCENT

                              1        126      84.0      84.0      84.0
                              2         22      14.7      14.7      98.7
                              3          2       1.3       1.3     100.0
                                   -------   -------   -------
                          TOTAL        150     100.0     100.0

VALID CASES      150      MISSING CASES      0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ITEM12

                                                         VALID     CUM
 VALUE LABEL              VALUE  FREQUENCY   PERCENT   PERCENT   PERCENT

                              1         25      16.7      16.9      16.9
                              2        123      82.0      83.1     100.0
                              .          2       1.3   MISSING
                                   -------   -------   -------
                          TOTAL        150     100.0     100.0

VALID CASES      148      MISSING CASES      2



ITEM13

                                                         VALID     CUM
 VALUE LABEL              VALUE  FREQUENCY   PERCENT   PERCENT   PERCENT

                              1        105      70.0      73.4      73.4
                              2         38      25.3      26.6     100.0
                              .          7       4.7   MISSING
                                   -------   -------   -------
                          TOTAL        150     100.0     100.0

VALID CASES      143      MISSING CASES      7
```

BEST COPY AVAILABLE

TERRY CAMPUS RESPONSES

```
ITEM1

                                                       VALID     CUM
  VALUE LABEL              VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1         4       2.5      2.5      2.5
                               2        26      16.1     16.1     18.6
                               3       123      76.4     76.4     95.0
                               4         8       5.0      5.0    100.0
                                   -------  -------  -------
                           TOTAL       161     100.0    100.0

VALID CASES      161      MISSING CASES      0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM2

                                                       VALID     CUM
  VALUE LABEL              VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1         2       1.2      1.2      1.2
                               2        36      22.4     22.4     23.6
                               3       115      71.4     71.4     95.0
                               4         7       4.3      4.3     99.4
                               5         1        .6       .6    100.0
                                   -------  -------  -------
                           TOTAL       161     100.0    100.0

VALID CASES      161      MISSING CASES      0

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM3

                                                       VALID     CUM
  VALUE LABEL              VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1         5       3.1      3.1      3.1
                               2        38      23.6     23.7     26.9
                               3       100      62.1     62.5     89.4
                               4        15       9.3      9.4     98.8
                               5         2       1.2      1.3    100.0
                               .         1        .6   MISSING
                                   -------  -------  -------
                           TOTAL       161     100.0    100.0

VALID CASES      160      MISSING CASES      1


 ITEM4

                                                       VALID     CUM
  VALUE LABEL              VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                               1        29      18.0     18.5     18.5
                               2        36      22.4     22.9     41.4
                               3        33      20.5     21.0     62.4
                               4         4       2.5      2.5     65.0
                               6        55      34.2     35.0    100.0
                               .         4       2.5   MISSING
                                   -------  -------  -------
                           TOTAL       161     100.0    100.0

 VALID CASES      157      MISSING CASES      4
```

```
                                                        VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         11      6.8      6.9      6.9
                                2         63     39.1     39.4     46.3
                                3         86     53.4     53.8    100.0
                                .          1       .6  MISSING
                                     -------  -------  -------
                            TOTAL        161    100.0    100.0

VALID CASES     160      MISSING CASES     1

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM6

                                                        VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         43     26.7     27.0     27.0
                                2         86     53.4     54.1     81.1
                                3         30     18.6     18.9    100.0
                                .          2      1.2  MISSING
                                     -------  -------  -------
                            TOTAL        161    100.0    100.0

VALID CASES     159      MISSING CASES     2

ITEM7

                                                        VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         97     60.2     61.0     61.0
                                2         50     31.1     31.4     92.5
                                3         11      6.8      6.9     99.4
                                4          1       .6       .6    100.0
                                .          2      1.2  MISSING
                                     -------  -------  -------
                            TOTAL        161    100.0    100.0

VALID CASES     159      MISSING CASES     2

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM8

                                                        VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1          2      1.2      1.3      1.3
                                2         21     13.0     13.3     14.6
                                3         66     41.0     41.8     56.3
                                4         69     42.9     43.7    100.0
                                .          3      1.9  MISSING
                                     -------  -------  -------
                            TOTAL        161    100.0    100.0

VALID CASES     158      MISSING CASES     3

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ITEM9

                                                        VALID     CUM
 VALUE LABEL                VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                                1         85     52.8     53.5     53.5
                                2         15      9.3      9.4     62.9
                                3         59     36.6     37.1    100.0
                                .          2      1.2  MISSING
                                     -------  -------  -------
                            TOTAL        161    100.0    100.0

VALID CASES     159      MISSING CASES     2
```

```
ITEM10

                                                    VALID     CUM
  VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                              1          5      3.1      3.1      3.1
                              2         24     14.9     15.1     18.2
                              3        130     80.7     81.8    100.0
                              .          2      1.2  MISSING
                                   -------  -------  -------
                          TOTAL        161    100.0    100.0

VALID CASES      159      MISSING CASES       2

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ITEM11

                                                    VALID     CUM
  VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                              1        136     84.5     85.5     85.5
                              2         20     12.4     12.6     98.1
                              3          3      1.9      1.9    100.0
                              .          2      1.2  MISSING
                                   -------  -------  -------
                          TOTAL        161    100.0    100.0

VALID CASES      159      MISSING CASES       2

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
ITEM12

                                                    VALID     CUM
  VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                              1         20     12.4     12.7     12.7
                              2        137     85.1     86.7     99.4
                              3          1       .6       .6    100.0
                              .          3      1.9  MISSING
                                   -------  -------  -------
                          TOTAL        161    100.0    100.0

VALID CASES      158      MISSING CASES       3
```

```
ITEM13

                                                    VALID     CUM
  VALUE LABEL             VALUE  FREQUENCY  PERCENT  PERCENT  PERCENT

                              1        127     78.9     81.9     81.9
                              2         27     16.8     17.4     99.4
                              3          1       .6       .6    100.0
                              .          6      3.7  MISSING
                                   -------  -------  -------
                          TOTAL        161    100.0    100.0

VALID CASES      155      MISSING CASES       6
```

WILMINGTON CAMPUS RESPONSES

CHM

STUDENT SURVEY ON DTCC PLACEMENT TESTING

Please take a few minutes of your time to help us evaluate your reaction to the Computerized Placement Test. Your answers will be strictly confidential. You will be helping us to develop testing procedures that will be most beneficial to our students. Please place a " " in the box which best describes how you feel.

1. How difficult was the reading comprehension part of the Computerized Placement Test for you?

8 ☐ Too difficult
113 ☐ Just about right
5 ☐ Too easy

2. How difficult was the sentence skills part of the Computerized Placement Test for you?

8 ☐ Too difficult
110 ☐ Just about right
12 ☐ Too easy

3. How difficult was the arithmetic test of the Computerized Placement Test for you?

18 ☐ Too difficult
99 ☐ Just about right
14 ☐ Too easy

4. How difficult was the algebra test of the Computerized Placement Test for you?

40 ☐ Too difficult
44 ☐ Just about right
1 ☐ Too easy
38 ☐ Did not take
5 NO RESPONSE

5. Did you feel challenged to do as well as you could on the Computerized Placement Test?

14 ☐ No
30 ☐ Somewhat
82 ☐ Yes

6. In comparison with the paper and pencil CGP Placement Test (which you also took), did you find the Computerized Placement Test ...

38 ☐ More challenging than a paper and pencil test.
58 ☐ About the same.
29 ☐ Less challenging than a paper and pencil test.
1 NO RESPONSE

7. Were you nervous when taking the Computerized Placement Test?

66 ☐ No
36 ☐ Somewhat
24 ☐ Yes

8. While taking the Computerized Placement Test, did nervousness prevent you from doing your best?

80 ☐ No
32 ☐ Somewhat
14 ☐ Yes

9. Which would make you more nervous, a paper and pencil test or a computerized test?

48 ☐ A paper and pencil test.
18 ☐ A computerized test.
54 ☐ They'd be about the same.
1 NO RESPONSE

10. Did you feel any pressure to complete the computerized test quickly?

3 ☐ Yes, a great deal of pressure.
38 ☐ Yes, some pressure.
85 ☐ None

11. Were the directions given by the computer clear and easy to understand?

100 ☐ Yes, very clear.
26 ☐ Reasonably clear.
0 ☐ No, not very clear.

12. Did you have any difficulty reading the material presented on the computer screen?

21 ☐ Yes
105 ☐ No

13. If you had your choice, would you prefer a Computerized Placement Test or a paper and pencil one?

102 ☐ Computerized
24 ☐ Paper and pencil

14. Do you have any comments about either one of the placement tests that you'd like to share with us?

APPENDIX H

PRACTICE EFFECT

The College Board
45 Columbus Avenue New York New York 10023-6992
(212) 713-8000

October 7, 1992

Ms. Mary Lynn Houghtaling
Assessment Center Coordinator
Deleware Technical and Community College
Terry Campus
1832 North duPont Parkway
Dover, DE 19901

Dear Mary Lynn,

It was good talking with you yesterday afternoon. I would like to follow up with some suggestions and reminders regarding our phone conversation yesterday and the September 24 workshop. You might find this helpful prior to the implementation of testing on all four campuses.

It is important to alternate test administrations to avoid the "Practice Effect" that occures when students are administered two type of tests (i.e. the CPG and the CPTs). Dr. Roberts and Dr. Bolig discussed thes during our workshop. You should not experience the occurance of this effect since you will be alternating the order of CGP and CPTs administrations with every other ten students tested (i.e. 10 students will begin their testing session with the CPG to be followed by the CPTs, the next ten students will begin their testing session with the CPTs to be followed by the CPG, and so forth until all students are tested.).

When constructing rules for placement, it would be helpful if the cutscores were given to you in "total right score" format. If the cut scores are presented in a percentile format, you can refer to page 127 in the "CPTs User's Manual" for the correlation chart.

Please feel free to contact me if I may be of further assistance. It is exciting to watch four campuses working together to successfully implement the nation's first state wide application of computerized adaptive testing. I look forward to hearing from you and keeping abreast of your progress.

Sincerely,

Lisa

Lisa G. Dickens
CPTs/ACCUPLACER Director

cc: Arthur Doyle
Howard Everson
Mark Pomplin
Dr. Earl Roberts
Dr. John Bolig

TESTING SEQUENCE

It was anticipated that the sequence of taking the CGP or the Accuplacer test might result in group differences. Fatigue, or "test wisdom" could have had an influence on a student's performance.

In the tables below, I indicate the mean and the probability of there being a difference between students who took the CGP first or the CPT (Accuplacer) first. There were no significant differences between the mean scores on any of the test sequences.

CGP-READING	TESTED	MEAN	S.D.	T VALUE	PROBABILITY
CGP FIRST	339	46.2655	27.747	0.14	0.892
CPT FIRST	318	45.9717	27.538		

CGP-WRITING	TESTED	MEAN	S.D.	T VALUE	PROBABILITY
CGP FIRST	341	47.0323	27.236	-0.07	0.940
CPT FIRST	318	47.1918	27.451		

CGP-ARITHMETIC	TESTED	MEAN	S.D.	T VALUE	PROBABILITY
CGP FIRST	337	40.5015	24.983	-0.67	0.504
CPT FIRST	317	41.8076	24.926		

CPT-READING	TESTED	MEAN	S.D.	T VALUE	PROBABILITY
CGP FIRST	364	74.4011	21.826	-1.54	0.125
CPT FIRST	328	76.8780	20.584		

CPT-WRITING	TESTED	MEAN	S.D.	T VALUE	PROBABILITY
CGP FIRST	364	79.5989	22.137	-0.38	0.703
CPT FIRST	328	80.2439	22.219		

CPT-ARITHMETIC	TESTED	MEAN	S.D.	T VALUE	PROBABILITY
CGP FIRST	363	55.7052	24.646	-1.61	0.109
CPT FIRST	323	58.7864	25.487		

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